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JOURNAL *of* EDUCATIONAL RESEARCH

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RESEARCH AND THE SCHOOLS[1]

ROBERT A. DAVIS
University of Colorado

IN education last year 4,651 research studies[2] which represent an expenditure of more than $10,000,000 in time and money were made. In addition to university presses, commercial houses, and a large number of public school-research bureaus which publish findings of investigations, there are approximately fifteen periodicals which report research studies in education. There are also about fifty periodicals in the fields of psychology, sociology, physiology, and medicine which publish investigations relating to problems in education. Analysis of such sources from their beginning to the present gives a fair index of the amount and character of research produced in this country. It is also possible from such study to accurately trace the development of the scientific movement in education. An examination of thirteen periodicals[3] within the field of education since 1890 reveals that there are 2,837 studies which meet the criteria for objective research. An analysis of fifty periodicals in education, psychology, sociology, and medicine shows more than 15,000 studies[4] which bear upon educational problems. As further evidence of this extraordinary growth in research new periodicals continue to appear.

Research in education has reached a stage in its development where it is appropriate to check its contributions in the solution of educational problems and to evaluate their methodology. The problem of justifying the amount of time and money annually spent on research would be no

[1] An abstract of an address delivered before the School and College Conference, Boulder, Colorado, March 24, 1932.

[2] *School Life*, XVII (January, 1932), p. 90.

[3] Franke, P. R., and Davis, Robert A. "Changing Tendencies in Educational Research," *Journal of Educational Research*, XXIII (February, 1931), pp. 133-145.

[4] Davis, Robert A. *Methods of Educational Research*, College of Education, University of Colorado, (Mimeographed).

less difficult than the attempt to justify the increased cost of education to the community or state. Some values may properly be checked against experimentation, while others include such intangible qualities as scientific attitude and critical thinking which although they have been of inestimable value in promoting education cannot be objectively measured. Some of the most obvious defects and their influences on education which apply in general to all investigations may be noted.

1. *Confirmation of the methods and results of investigations has been clearly lacking in education.*—Education cannot attain scientific accuracy until problems have been studied so intensively that results may be stated in more accurate terms than the best guess or greatest probability. On almost any topic in education there may be amassed a large number of investigations, but their results are so conflicting that it is difficult to deduce more than the most general tendency for any issue. Investigators approach the same problem in diverse ways, with varying groups, and with different types of measuring instruments, and seldom are there repetitions of previous studies to test the adequacy of their techniques and the soundness of their conclusions. As a consequence of this tendency to study fragmentary elements of a problem without verification, solutions to many problems in education are no more nearly solved today than they were fifteen years ago, although the number of studies has increased at a tremendous rate.

2. *Research in education is conspicuously lacking both in the adequacy of sampling of subjects and in the thoroughness of its methods.*—There is a definite tendency for investigators to make studies on the basis of a relatively few subjects, hurriedly to pre-plan investigations and endeavor to eliminate errors by the application of statistical devices. Even when methods of research are thorough, there is the tendency to make studies on the basis of the middle fifty percent of the population and to make applications for the entire one hundred percent. Investigations have also extended over too short a period to make their results significant for practical application. This criticism is especially applicable to experiments which last only a few minutes. Available evidence indicates that results obtained from experiments of a few minutes' duration are not predictive of average or final limits of attainment. The school-room situation postulates that there shall be considerable fluctuations during the course of a day, week, or school term, and studies which cover only a fragmentary portion of this time do not obtain results which apply to school situations.

3. *Research which is performed under laboratory conditions is limited in its adaptability to schoolroom situations.*[5]—Although the laboratory affords the most accurate observations and insures the most careful control, its results are produced chiefly under artificial conditions and with meaningless materials. This criticism is particularly applicable to the experimental method of research where it is often applied in the study of problems within the field of educational psychology. In this field laws and principles have been established primarily on the basis of results obtained in the laboratory with meaningless materials, and it is quite certain that their applications are not appropriate to learning in the classroom. The social phases of learning and education as a whole cannot be considered when investigations are performed under artificial conditions and with artificial materials.

4. *Educational applications are difficult until research is made with individuals who range over a wide span of chronological, educational, and mental maturity.*—Some fields of education have drawn too heavily upon results obtained from animal experimentation, and facts and principles derived from animal study cannot apply directly to human behavior. More studies are needed which deal with children who range from the kindergarten stage through the adolescent period. There have been numerous studies based on the assumption that final limits of physical and mental development can be predicted for a child at an early age, but as yet the investigations have not extended over a long enough period to justify definite conclusions. The same criticism may be made for most investigations which have dealt with the learning process. Studies have been made with pupils of different grades, ages, and degrees of intelligence, and there are few which have dealt with children who range in maturity over several ages and grades. Such a condition has made it difficult to suggest pedagogical implications.

5. *Descriptive studies have been widely developed but have not produced fruitful results.*—The school survey which has been one of the most popular forms of descriptive research originated in an attempt to justify the increased cost of education. With the development of objective methods for studying educational problems, the demand increased for more critical study of the schools. The increasing need for economy and efficiency has made the survey an instrument for measuring the adequacy of school aims, curriculum organization, administration, and achieve-

[5] Dewey, John. *The Sources of a Science of Education*, New York: Horace Liveright, 1929.

ment. After the war there was a refinement of method to supplement personal observation with carefully gathered and properly treated objective data, and the inclusion of standardized tests and scales treated statistically made the survey more reliable.

School superintendents and boards of education believed that the survey would serve as a remedy for all educational ills, and have spent tremendous sums in this way. Recommendations have been elaborately outlined and yet in most cases have not been observed. The chief weakness lies in a lack of consecutive work to secure the new adjustments recommended by the surveyors.

6. *Analytical studies have caused school officials to think of situations in terms of parts rather than as wholes.*—In every field during the initial stages of its development, some analysis is necessary. Analytical studies are valuable in any new science because they aid in isolating and separating general and intangible problems into their subordinate elements so that they may be more definitely studied. This is one of the first types of study employed in any new field because it aids in indicating its issues and problems, and thus makes possible more intensive investigation. Although the analytical method has enabled us to treat problems scientifically, it has caused us to think only of fragmentary phases of the whole situation.

7. *There has been an obvious lack of coördination in research activities.*—Too frequently studies in education deal with isolated and minute phases of a general problem rather than with a comprehensive study of large units. As a result, investigators are prone to investigate one aspect of a problem in which one grade or class is studied and the results of all such piecemeal investigations make little contribution to the solution of the general problem. There is some effort[6] to bring about such coördination, but so far these consolidated investigations have been confined to a small phase of the educational field. Some attempts may be illustrated by the Modern Foreign Language Study, the Classical Investigation, the Character Education Inquiry, and the many reports published by the National Society for the Study of Education. Such coördination of activities eliminates isolation in research, prevents needless duplication of effort, and makes consolidated information available.

Research has reached a point where it is appropriate to analyze difficulties and to outline means of overcoming them. Criticisms have been

[6] Good, Carter V. "Coördination of Educational Research" (Editorial), *Journal of Educational Research*, XXV (January, 1932), pp. 44-45.

directed chiefly against the quantitative methods of investigation because they have constituted the accepted methods in education. Descriptive, analytical, and experimental methods of studying problems may be termed quantitative methods of research while qualitative methods may include historical, integrative, and philosophical study of data. What is needed is not less quantitative research but that of a higher quality. There is also need to emphasize those methods which deal with qualitative data. A few of the lines along which improvement may be affected are indicated:

Improvement of quantitative methods of research.—Clearly one of the most important ways to improve quantitative research in education is through the refinement of its methods. Research method[2] must be classified to aid us in our thinking. The attempts at classification to date have been generally unsatisfactory because authors have made their classifications on *a priori* bases rather than upon analyses of investigations already made. Standardization of classification can be accomplished only when criteria have been established and a large number of investigations examined on that basis.[3] Research methods having been classified, improvement may best be affected by selecting for intensive study the techniques, tools, and devices of research.

Methods of research are general systematic procedures for solving problems while techniques are more specific in nature and refer to the mechanical processes employed in method. For example, techniques in the experimental method may be individual, single group, equivalent-groups, and rotation-groups techniques. Tools are contrivances used in measuring traits and gathering data including standardized tests, questionnaires, personal interview, and rating scales. Devices are instruments for making both tools and data derived from their use effective, and include statistical formulae, ways of creating favorable attitudes and responses, letters accompanying questionnaires, and instructions designed for tests.

1. *More refined control of techniques is needed.*—In experimental research observations are varied, repeated, and isolated, but in educational science control measures are seldom refined. The provision of steno-

[2] For the most recent and comprehensive classifications of educational research methods see "Symposium on Educational Research," *Journal of Educational Research*, XXIII, XXIV (May-June, 1931), pp. 353-382; 1-22.

[3] Barr, A. S. "Research" (Editorial), *Journal of Educational Research*, XIX (January, 1929), pp. 56-7.

graphic reports of the proceedings in experiments in education is one of the most obvious needs. We are rarely sure of the exact nature of experimental factors whether they include special types of teaching or motivating devices. In descriptive research, facts are studied as such without determining by controlled observation the influence of factors operating to produce causal relationships. However, the investigator who uses the descriptive method may provide control by carefully selecting individuals or groups for study, by the choice and refinement of instruments of measurement, and by the application of appropriate statistical devices for interpreting data. Analytical research has for its aim the separation of data into new elements for the purpose of obtaining new data as a basis for construction or reconstruction, and control measures may be developed similarly to those of the descriptive method.

2. *Research tools should be more critically evaluated.*—Since there are now available a large number of objective tests representing all subjects and grades, the selection of tools in research is a problem in itself. The personal interview and questionnaire have been extensively used as a means of gathering data, but there is little known of a scientific nature concerning their reliability and validity as instruments of research. Although rating scales have been the basis for estimating efficiency in every field in education, they have never been studied adequately for accuracy and adaptability to research problems. When tools are not available some must be skillfully constructed and critically evaluated[9] before being used. Many tools used in both psychological and educational investigations are so low in reliability that regardless of the outcomes of the studies the results are inconclusive. The reliability of tools having been established, there is the further problem of determining their validity which is more difficult because we are never sure that the criteria used for its establishment are in themselves valid.

3. *The important consideration for the improvement of devices is the choice and interpretation of statistical formulae which are appropriate for the data.*—New statistical formulae are being devised annually and old formulae are constantly refined. The derivation of statistical formulae is a task for a restricted group, and the most important consideration is that the typical research worker knows when and how to use them. Much evidence may be submitted to show that statistical devices are often incorrectly interpreted even when appropriately employed.

[9] Barr, A. S. *Loc. cit.*, pp. 56-7.

CONTRIBUTIONS OF QUALITATIVE METHODS OF RESEARCH

1. *Philosophical research.*—A philosophical approach is necessary at one stage or another in all types of research, but too often this approach has not been characterized by refined criteria. Criteria may be developed from careful and critical analysis of studies dealing with the process of thinking as outlined by both philosopher and psychologist who are fairly well agreed as to the essential steps involved. Refined judgment is possible. A tentative list of criteria having been outlined, it may be used as a guide for philosophical thinking and in evaluating philosophical studies.[10] Although there will neeessarily be some error in any conclusion reached by the philosophical approach, it need not deter one from using the method if care is taken to diminish such error by refining the process.

At this stage in the development of education, philosophical research is needed to harmonize conflicting theories, to evaluate fads, to suggest solutions, and to synthesize objective studies. Such an important contribution to education should no longer be permitted to function in its present disorganized form.

2. *Integrative research.*—Integrative research attempts to bring together the original findings of several, preferably all, of the writers in a given field or problem, to analyze and evaluate them, and to synthesize their conclusions. It aims to coördinate and present the best knowledge in a field or problem. Objective investigations dealing as they do with narrow and isolated phases of a subject mean little until their results have been harmonized and conjointly interpreted. Thus the busy administrator and teacher are enabled to determine and apply the most reliable results. The psychologists have sponsored integrative research for the convenience of research workers for a number of years, but the number of integrated studies in education is negligible.

3. *Historical research.*—Historical research is more than a collection of reports chronologically arranged. It includes not only the collection and organization of historical material but the analysis of causes, conditions, and effects together with interpretations which are significant for the future. Universities have discouraged students working for higher degrees to use this method because of its subjective nature. Education is

[10] Clugston, H. A., and Davis, Robert A. "Is a Scientific Method Possible for Philosophical Research in Education?" *Educational Administration and Supervision*, XVI (1930), pp. 293-299.

Clugston, H. A., and Davis, Robert A. "Suggested Criteria for the Philosophical Method of Research in Education," *Educational Administration and Supervision*, XVI (1930), pp. 575-580.

a comparatively new field, and it has been necessary for its development to extend over a period of years before tendencies and movements may be given their proper perspective. Nevertheless, education has advanced to a stage where its accomplishments and deficiencies may be evaluated. Historical research is needed to give us perspective, to aid in evaluating the strong and weak elements of the educational system, and to suggest the need for further research.

4. *Training in problem-solving.*—Research and problem-solving are so closely associated that if we advocate problem-solving for pupils we must also encourage research for teachers. Curiosity is natural, and research aids in satisfying that curiosity. The unfortunate circumstance is that in the process of teaching or administration our eagerness to solve problems is dulled and thwarted. The teacher is supposed to make special effort to stimulate eager curiosity of the child by his methods of teaching, and yet in his own daily life has fixed limitations of routine thinking.

The development of the ability to solve problems was stated as one of the early aims of education in this country. Baldwin in 1889 called attention to the fact that although problem-solving was a prime aim of education the schools were emphasizing the memorization of facts and principles. It is to be doubted if we are much further in the development of problem-solving ability now than then. Research has, however, brought to light some interesting facts since 1889,[11] and has indicated among other things: (1) that problem-solving ability appears very early in the life of the child, probably before the age of three years, and that this ability continues to develop through middle age with no decline until the period of senility; (2) that it can be cultivated and improved just as any other ability of the individual; and (3) that the only satisfactory way for the school to make its teaching effective is by developing a methodology of solving problems which will remain long after the pupil's knowledge has become obsolete.

[11] Davis, Robert A., and Ballard, C. R. *Fifty Years of Educational Psychology.* College of Education, University of Colorado, 1932.

OBJECTIVE DETERMINATION OF PUNCTUATION

W. Wilbur Hatfield
Chicago Normal College

Should schools continue to require that initial dependent clauses always be set off by commas? Here is objective evidence in the negative. The experiment to be reported was not extensive enough to warrant absolute statements, but is highly suggestive and also illustrative of a method of investigation that may well be followed up.

The study was based upon the assumption that the value of punctuation depends upon its contribution to the reader's instant and correct understanding of the sentence.[1] The desirability of setting off initial dependent clauses was tested, therefore, by measuring the speed of reading and the degree of comprehension of the same prose selections with and without commas after these clauses.

Ten years ago a Chicago Normal College student in an elective course in "Experiments in English" made a simple investigation of the problem, timing with a stop watch other students' reading of the parallel versions and afterwards testing their comprehension. She decided that setting off such initial clauses was probably worse than useless, but her experiment was necessarily too slight to warrant publication.

Two years ago a graduate of the Chicago Normal College working for me renewed the investigation on a larger scale and with better safeguards. The results proved interestingly similar.

First, three reading tests were prepared. Test I was a selection designed simply to measure the speed and comprehension of the freshmen who were to be the subjects of the experiment. Test II contained several initial dependent clauses which seemed to us to require punctuation, most of them purely explanatory (non-restrictive adverbial) clauses which ought to be punctuated in any position. This test was typewritten in two forms: Form P(unctuated) and Form U(npunctuated). Test III contained several initial clauses which so far as we could see did not require punctuation, most of them necessary (restrictive adverbial). It also was typed in Form P(unctuated) and Form U(npunctuated).

In spite of administrative difficulties the experimenter succeeded in dividing the fifty college freshmen subjects into two equal groups of

[1] It is comforting to note that the monograph called *Current English Usage*, published last fall for the National Council of Teachers of English, reports newspaper, magazine and book editors as constantly citing this principle in support of their specific rulings.

reasonably similar ability. On Test I Group A required an average of 85.14 seconds, whereas Group B took 85.64 seconds; in comprehension Group A averaged 72.24 percent, and Group B, 78.52 percent. Group A was a trifle faster, Group B clearly superior in comprehension.

The real experimenting began with Test II. Group A was given Form P and Group B was given Form U. The expected happened: setting off these clauses helped the reader. Group A with Form P averaged 124.90 seconds, against Group B's time of 124.05 with Form U. Allowing Group B its handicap of .5 second, as indicated by the results of Test I, the commas slowed the reading by 1.35 seconds—about 1 percent. But, allowing Group A its handicap of 6.28 percent in comprehension, as indicated by the results of Test I, the commas increased the comprehension by 12.96 percent of the possible score or more than 18 percent of the actual score. These results gave us added confidence in our method.

In the administration of Test III, the forms were rotated to eliminate chance elements. It now seems that this was probably a mistake.

Group A, taking Form U, required an average of 125.61 seconds, compared with Group B's time of 121.12 seconds on Form P. Making allowance for Group A's normal superiority in speed, the commas after these necessary clauses accelerated the reading by 4.98 seconds—about 4 percent. Note that with explanatory clauses there was a *retardation* of one percent. This outcome seems hard to explain.

In comprehension Group A, with Form U scored 73.2 percent, against Group B's 74 percent on Form P. Making allowance for Group B's superior normal comprehension, the commas seem to have *reduced* comprehension 5.88 percent of the possible score, or about 8 percent of the actual score. Note that with the necessary clauses punctuation had produced a large *increase* in comprehension.

	Time in Seconds		Comprehension in Percents	
	Test II	Test III	Test II	Test III
Punctuated	124.896	121.12	76.68	74.00
Unpunctuated	124.048	125.608	70.00	73.20
In favor of Punctuation	—.85	4.48	6.68	.80
Allowance from Test I	—.50	.50	6.28	—6.28
Superiority Punctuation	—1.35	4.98	12.96	—5.88

As in practically all educational experiments, there are possible sources of error. The probably unwise rotation of Forms P and U has already been mentioned. The allowances based upon superiority in Test I are not strictly scientific, partly because we cannot be sure that Test I measured the groups accurately. Finally there were only twenty-five subjects in

each group, and a limited number of *supposedly* typical dependent clauses in Tests II and III. Positive conclusions must await repetition of the experiment or some other corroborating evidence.

Yet the results, except the increase of speed by the setting off of unnecessary (restrictive adverbial) clauses, are quite plausible. *Current English Usage*, already referred to, finds that newspaper, magazine, and book editors do not agree concerning the punctuation of initial dependent clauses. Opinion is well divided concerning such a short sentence as *When John spoke we all listened*, with a slight preponderance against the comma. In a long sentence the editors are rather strongly in favor of the comma. They are moving slowly, upon the basis of unmeasured experience, away from the comma.

The important matter, however, is the method of investigation, which if used repeatedly and with more care than our circumstances permitted would give a verdict at once scientific and practical. A number of punctuation, and probably of rhetorical, principles might well be tested by thus measuring reader speed and comprehension.

HONESTY AS A CHARACTER TRAIT AMONG YOUNG PEOPLE*

H. W. James
Alabama College

Should a person be honest? Offhand the majority of people would probably say yes. It is not, however, the purpose of this paper to defend honesty as the best policy, but to analyze the status of honesty among young people, primarily college girls. Four methods are used, as follows:

(1) Honesty as shown by bluffing among college students, (2) honesty as shown by cheating among high-school students, (3) honesty as shown by lying among college students, (4) honesty as shown by college students concerning their choice of a future husband's vocation.

1. Taking up honesty as shown by bluffing, a multiple choice examination of twenty questions was composed in such a way that none of the answers given were correct. The questions called for fictitious word definitions, authors of unwritten books, and identification of certain alleged passages in Shakespeare. In the spring of 1930 this twenty-question test was given to 102 Alabama College students with the following results:

Average number of questions bluffed by sophomores, 18.3
Average number of questions bluffed by seniors, 18
Average number of questions bluffed by freshmen, 17.9
Average number of questions bluffed by juniors, 17.7

Least number of questions bluffed by any senior, 11
Least number of questions bluffed by any junior, 10.
Least number of questions bluffed by any sophomore, 8
Least number of questions bluffed by any freshman, 3

Seniors bluffing over one-half of the questions, 100 percent
Juniors bluffing over one-half of the questions, 96.6 percent
Freshmen bluffing over one-half of the questions, 94.5 percent
Sophomores bluffing over one-half of the questions, 94.1 percent

The number that bluffed all 20 questions, 36.86 percent
The number that bluffed over half of the questions, 95.99 percent
Average number of questions bluffed by all students, 18
Smallest number bluffed by any student, 3

The writer does not defend this as evidence of general dishonesty any more than he would say the average reaction of an individual in assessing his taxes proves general dishonesty. Students often are placed in a

* Paper read at the meeting of the American Association for the Advancement of Science, New Orleans, December 1931.

position where they are expected to indicate they know a thing when they do not.

It will be noted from the data given that there is a tendency for bluffing to increase as the student progresses in school. Of course, this may be due to the elimination of those who do not bluff. Note that one hundred percent of the seniors bluffed over one-half of the questions. These figures would indicate that pretending to know the right answer is generally practiced by college students.

2. *Honesty as shown by cheating.*—In the spring of 1929, the writer obtained information upon cheating by submitting a questionnaire to children and teachers in the elementary and high schools of Alabama. Information was obtained from four hundred and thirty-nine children in ten different schools located in extension center groups of different sections. The questionnaire was handled in a confidential manner. The following admissions were made by students concerning their own practice of honesty in school work for the one year of 1928-29, and the answers of the teachers were based on their personal actions as students. The questions and results are:

1. Have you looked on some other student's paper while taking an examination? Grade three, 12 percent, yes; grade four, 25 percent, yes; grade five, 58 percent, yes; grade six, 66 percent, yes; grade seven, 92 percent, yes; grade eight, 92 percent, yes; grade nine, 93 percent, yes. Of the teachers, 83 percent admitted that they had done this.

We see that 92 percent of all of the high-school pupils had done some copying in examinations. Note from the preceding figures that cheating gradually increases as the pupil progresses. Inasmuch as it is not the intention here to analyze cheating practices but merely to show the prevalence the remaining figures given are for high-school students and teachers, only.

2. Have you let someone else look on your paper while taking a test? High-school pupils, 94 percent, yes; teachers, 80 percent, yes.
3. Have you looked at a book or notes while taking a test? High-school pupils, 80 percent, yes; teachers, 53 percent, yes.
4. Have you copied some other person's arithmetic to hand in as your own work? High-school pupils, 99 percent, yes; teachers, 63 percent, yes.
5. Have you copied the whole or a part of a composition to hand in as your own work? High-school pupils, 67 percent, yes; teachers, 35 percent, yes.
6. Have you let other pupils copy your work for the purpose of handing it in as their own? High-school pupils, 99 percent, yes; teachers, 85 percent yes.

7. Have you seen others cheating?
   High-school pupils, 100 percent, yes; teachers, 100 percent, yes.
8. Did you ever report anyone for cheating?
   High-school pupils, 7 percent, yes; teachers, no answers.
9. Did you report every person you saw cheating?
   High-school pupils, 100 percent, no; teachers, no answers.
10. Have you known teachers to see cheating and do nothing about it?
    High-school pupils, 87 percent, yes; teachers, 25 percent admitted doing so in their own classes.

One hundred percent of the high-school pupils and 98 percent of the teachers had been connected with cheating in some form. When asked why it is not right to cheat: "it is wrong" was the most common answer of the pupils; "mother (or father) said not to" was the next most frequent answer; "knew the answer without cheating" was given by quite a few. When asked why they cheat, the most common answer was "did not know the answer," the next most common "to pass the grade," while one said his mother told him to. Expediency seems the deciding factor.

The outcome of this study shows that if we are to judge the attitude of honesty by the prevalence of cheating, the prevailing attitude among high-school students is the opposite from honesty. The findings of this study are confirmed by a recent investigation in another college in which one hundred fifty out of one hundred seventy-six college girls admitted cheating. The author does not wish to imply that cheating is universal in college, but indications are that, if it is not, expediency is a very important factor in restricting it.

3. *Honesty as shown by lying among college girls.*—Before going into this study it is probably best to define what we mean by a lie, since there seems to be a lack of agreement on it. For our purpose, we have taken the simple definition, "a lie is intentional deceit." We would not judge a lie by the desirability or undesirability of its effect. An intentional deceit may be beneficial to all parties, nevertheless, it is still a lie. In such a case, the matter for decision is whether or not the truth should be adhered to at all costs, or whether deceit should be practiced for the individual or general good. Rationalization on this point is undoubtedly one reason for a difference of opinion as to what constitutes a lie. Some people do not like to admit to themselves that they lie, even in a good cause. The writer thinks of lies as falling into four classes: (1) Lies that injure other people without particularly benefiting the liar; (2) lies that injure other people but which benefit the liar himself; (3) lies that do not injure

other people but benefit the liar; (4) lies that primarily benefit other people.

It will be noted that in the tables given no attempt is made to classify the lies. As previously stated this study is not theoretical, but attempts to show status only. The data were gathered by the use of questionnaires handled in a confidential manner.

With the help of college students, a check list was made of lies told to each other, lies told to parents, and lies told to teachers. After each itemized lie the students were asked to place an "X" if they lied regularly in the stated situation, "Y" if they lied occasionally, and "Z" if they never lied. Due to the fact that a person, if they lie at all, would be justified in lying in answer to a questionnaire on lying, students were asked to check the listed lies for both their own practice and for their opinion of the practice of others. A comparison of these two series of answers indicates that the students were frank in answering about personal practice.

For the datum on lies among college students there were 1516 X marks for personal practice against 1453 X marks for the practice of others. For lies to parents there were 939 X marks for personal practice against 244 for others. For lies to teachers there were 897 X marks for personal practice against 283 for others. This means that in all cases they have rated their own practice as more dishonest than the general practice of others. That is, the standard for the group as shown by judgments is above individual practice.

TABLE I

LIES THAT COLLEGE GIRLS TELL TO EACH OTHER

List of Lies	A	B	List of Lies	A	B
Saying had a good time when did not	65	9	Refusing to dance	34	25
Saying something is pretty when it is not	56	5	Popularity	34	44
What thinking about	55	12	Letter-writing	33	25
About liking and disliking people	55	12	Home life	33	41
Excuses for not returning borrowed property	55	23	Going to town	32	31
"Trade-last" compliments	54	11	Not doing favors	32	35
Things to lend—clothes, money	48	22	Smoking	32	16
How much work done	44	20	How much eaten	31	34
Dates, number and whom with	44	39	About parties	31	41
"Slamming" people	43	23	Whom they know	30	27
Bringing in work late	41	32	About future plans	30	21
Home town, bragging	41	27	Grades	29	38
Playing a prank	40	20	Being late to class	29	41
About "flunking"	38	53	Gifts and whom from	29	41
Amount of money spent	38	33	Places gone	28	40
"Slamming" school	37	23	Borrowing clothes	27	43
Prices of clothes	36	37	Cutting class	26	38
Amount of time studied	36	21	Age	24	51
Beaux, number and who	36	45	Shows they have seen	23	47
Dances attended and whom with	36	53	About going to church	21	39
Letters, number, whom from	36	42	Books read	20	34
Faults of instructors	35	40	Being late to breakfast	20	47
Visiting	34	38	Allowances	18	49
			Borrowing under false pretenses	15	55
			Size of shoes	14	56

These data were obtained from 91 college students by confidential admission.

Column A represents the percent of students who admitted a common practice of lying concerning the specified items. Column B is the percent who stated that they never lied about these items.

It will be noticed that the total of the A and B columns does not total 100 percent for any item. The remaining percent answered that they lied occasionally about the item. "Common practice" and "not lying at all" were considered by the writer as the most significant figures.

TABLE II

LIES THAT COLLEGE GIRLS TELL TO PARENTS

List of Lies	A	B
How you spend money	70	1
Where you went	70	3
Concerning grades	65	7
Time you came in at night	64	3
Reasons for coming in late	63	0
Excuses for not writing	60	7
Smoking	59	2
Money	58	3
How hard you study	56	2
Need for clothes	54	3
How far you drove the car	53	4
Whom you went with	51	24
Excuses to spend the week-end away	49	2
Dancing or cards	46	10
About going to church	46	27
Sickness	32	12
Eating something	29	22
Breaking something	27	22
Cleaning up the house	26	20

LIES THAT COLLEGE GIRLS TELL TO TEACHERS

List of Lies	A	B
Going to doctor while away for week-end	81	2
Enjoy the course or flattery	78	1
Agreeing with teacher when you really do not	76	3
Length of time you studied	76	0
Outside reading	68	2
Excuses for cutting class, being late	65	2
Number of books read	64	2
Illness	56	3
About studying the lesson in answer to question	52	6
Reasons for not bringing in a paper	50	4
Losing your paper	49	8
Studying wrong assignment	47	8
Loss of book	41	15
About not hearing question	40	4
About paying attention in class	38	8
Copying notebook	36	7
Cheating	19	24

The above was obtained from 96 college students by confidential admission.

Column A represents the percent of students who admitted a common practice of lying concerning the specified items. Column B is the percent who stated that they never lied about these items.

It will be noticed that the total of the A and B columns does not represent 100 percent for any item. The remaining percent answered that they lied occasionally about the item. "Common practice" and "not lying at all" were considered by the writer as the most significant figures.

Judging honesty by the prevalence of lying among college girls it seems that Diogenes would need to carry his lamp some time longer before finding an honest man (or woman in this case). Expediency again seems to be the watchword whether it is in dealing with each other, their parents, or teachers.

4. *Honesty as shown by college students concerning their choice of a future husband's vocation.*—In this study, college girls were given the names of ten vocations and asked to use their personal opinion and rank them in order of the general honesty of the group. Information was obtained from one hundred twenty college girls, also from two hundred ten high-school girls, and thirty-five teachers. Using the index number system, the vocations ranked as follows:

TABLE III

VOCATIONAL GROUPS RATED AS TO GROUP HONESTY ACCORDING TO THE OPINION OF COLLEGE STUDENTS, HIGH-SCHOOL PUPILS, AND TEACHERS

As rated by 120 college students	As rated by 210 high-school students	As rated by 35 teachers
1. Minister	1. Minister	1. Minister
2. Farmer	2. Teacher	2. Teacher
3. Teacher	3. Farmer	3. Farmer
4. Doctor	4. Doctor	4. Doctor
5. Skilled workman	5. Skilled workman	5. Skilled workman
6. Merchant	6. Merchant	6. Merchant
7. Traveling salesman	7. Real estate agent	7. Traveling salesman
8. Real estate agent	8. Lawyer	8. Real estate agent
9. Lawyer	9. Traveling salesman	9. Lawyer
10. Politician	10. Politician	10. Politician

("1" being most honest, "10" being the least honest, etc.)

In continuance of this study the same one hundred twenty college girls were asked to name the vocation that they most preferred their future husbands to engage in. (They were asked to assume that any boy they were going with could shift to their vocational choice.) Following is the rank of vocations and the number of votes.

Rank	Votes
1. Lawyer	34
2. Doctor	32
3. Merchant	15
4. Real estate agent	13
5. Teacher	9
6. Farmer	6
7. Politician	5
8. Skilled workman	3
9. Minister	2
10. Traveling salesman	1

For college women the three groups rated highest in honesty, (minister, farmer, and teacher) received 17 votes for marriage preference. The lowest three groups in honesty rating, (real estate, lawyer, and politician), received 52 votes. The total number of votes for marriage for the five vocational groups rated highest in honesty was 52, while the total number of votes for the lower five groups in honesty rating was 68, leaving a balance of 16 votes in favor of the least honest group.

The vocation of lawyer was ranked next to last in honesty by college students, but was first choice for a husband's vocation. Over one-half of the girls desire to marry a lawyer or doctor, so vocational counselors might take this into consideration in guiding young men into a vocation.

Summarizing this point: "Bringing home the bacon" seemed to be more important than how the bacon was obtained. Again we see honesty over-balanced by other factors.

The findings of the four investigations point to a conclusion that is not very creditable to our educational procedure in home and school. Honesty is not developed. Dr. Buhler of the Psychological Institute of Vienna reported that her investigations showed that thirty-five percent

of children between six and fifteen years of age tell lies, and believe in their necessity. It would appear from this study that people above this age rely still more upon expediency as a basis for truthfulness.

The results of the present study indicate that the general sentimentalistic point of view towards honesty is not correct, and that expediency may be a more influential concept than "honesty is the best policy."

The writer does not believe the studies analyzing honesty throw any reflection upon the particular individuals who furnished the answers. We have the finest group of college girls at Alabama College that the writer has ever been associated with. It seems that their answering in such a frank manner is evidence of their fineness. The reflection, it seems to the author, is on the present plan for developing such attitudes as honesty.

Are we trying to accomplish the impossible?

It may not be a question of dividing people into two groups, honest and dishonest, but it may be more a question of relative honesty. One person may be honest in one field and dishonest in others, while another person may be honest and dishonest in different fields. This paper gives evidence that we do not teach anything like general honesty. If we assume the validity of this conclusion it opens up the big problem of discarding our present sentimental idea of honesty and substituting a more practical working concept.

Are there certain situations where we would advise dishonesty? Are there fields in which honesty is of negligible importance? Are there types of situations where honesty should always be practiced? These problems are suggested by the findings herein presented.

In summarization, this study gives evidence to show that:

1. Pretending to know the right answer is rather generally practiced by college students.

2. Cheating in some form is practiced by most high-school students.

3. It is a common practice for the majority of college women to lie to each other, to their parents, and to their instructors.

4. Factors other than honesty of a vocation are of most importance to college girls in their choice of a future husband's vocation.

The above conclusions indicate that our educational methods of development of honesty are not accomplishing the objective set up in our commonly accepted social philosophy of this subject. The difference between practice, as shown by these figures, and the generally accepted standards of social conduct is so great and of such a vital nature that more evidence is needed to substantiate the findings.

LANGUAGE TRANSFER

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THE study herein reported was undertaken to test the transfer of training of one or more foreign languages in the ability to get meaning from an unfamiliar language. The study was made in the University of Wisconsin high school in April, 1931. Latin, French, and German are offered in the school's program of foreign languages; Spanish is not.

Circumstances made the school a favorable field for this particular study. Only one pupil, a boy, had any knowledge of Spanish. He was a native of Spain. Foreign language is not required for graduation, and as a result there were a few pupils of all ages who had had no systematic foreign language instruction. The nature of the pupil personnel and of the community, however, had operated to bring about a heavy registration in all three of the languages offered.

The material used in testing was an excerpt from a newspaper printed in Spanish in New York City. The article from which the material was taken was an account of a football game between New York University and Rutgers, with a sport writer's summary of the game and certain comments upon the quality of the New York University team.

Each of the 204 pupils, ranging from grades seven to twelve, was given a mimeographed copy of this excerpt, a set of directions for taking the test, a blank on which to register the desired information with regard to himself, a list of thirty-four important words of the excerpt, and a blank sheet of paper. The directions to the pupil read as follows:

1. Fill in the upper part of the "Pupil Data" sheet.

2. You are to do the best you can at translating the excerpt from an article written in Spanish. Write your translation on the blank sheet, using both sides if necessary. It will be interesting to see whether your study of another foreign language will aid you.

3. After you have written your translation, turn to the sheet headed "Word Meanings." Give the meanings of as many of the words as you can. The words are listed in the order in which they appear in the article. Refer as much as you please to your translation.

4. This is not a time test. When you have done all you can, hand your paper to the teacher and busy yourself at something else.

EXCERPT FOR READING

New York University cerró su temporada de 1930 como correspondía a un equipo que los críticos consideran todavía, a pesar de haber sido

derrotado por Fordham y Georgia, como uno de los mejores equipos en la historia de la universidad. El último partido tuvo lugar el sabado pasado, en el Yankee Stadium, en presencia de unas 25,000 personas, contando con el excelente cuadro de Rutgers como contendiente. El triunfo de N.Y.U. fué de 33 puntos contra 0.

En el partido del sábado se destacaron especialmente Joe LaMark, Bob MacNamara, Jim Hanguay, Bill MacNamara y Sugar Hugret. El equipo todo estuvo admirable, presentando una línea y un cuadro de defensas que probó ser demasiado mucho para Rutgers.

N. Y. U. completó 17 de 28 pases que puso en juego, los que representaron un avance total de 405 yardas, mientras que Rutgers sólo pudo completar 6 de un total de 16, con un yardaje total de 64 yardas. N. Y. U. hizo 14 "first downs," contra 8 Rutgers, representando un total de 138 yardas contra 73 Rutgers.

Directions for Scoring Translation

1. This is an attempt to find the carry-over from the study of one foreign language to a problem in interpretation of an unfamiliar language.
2. In marking, the question is not as to the kind of English in which the interpretation is expressed. The question is, "Did the pupil get the complete idea?"
3. Nineteen ideas are listed below as those which, among others, are expressed in the excerpt from a Spanish newspaper (printed in New York City).
4. Items 1, 2, 3, and 9 count more than the others, as shown by the parenthetical numbers; Item 1 counts 5, item 2, 2, item 3, 2, and item 9, 2; all others count one each.
5. The pupil's score must take this weighting into consideration. A perfect score would be 26.
6. Credit the pupil with each item in which his translation convinces you that he got the complete idea. There is no partial credit.

Translation Key

1. (5) The N. Y. U. 1930 football team was considered one of the best teams in the history of the University.
2. (2) The N. Y. U. team had been defeated by Fordham and Georgia.
3. (2) The last game of the season was with Rutgers.
4. This game was held in the Yankee Stadium.
5. 25,000 people attended.
6. N. Y. U. won, 33-0.
7. The five men mentioned stood out especially.
8. The whole N. Y. U. team played well.
9. (2) The N. Y. U. defense was too much for Rutgers.
10. N. Y. U. attempted 28 passes.

11. N. Y. U. completed 17 passes.
12. N. Y. U. gained 405 yards by passes.
13. Rutgers attempted 16 passes.
14. Rutgers completed 6 passes.
15. Rutgers gained 64 yards by passes.
16. N. Y. U. made 14 first downs.
17. N. Y. U. gained 138 yards in downs.
18. Rutgers made 8 first downs.
19. Rutgers made 73 yards in downs.

Vocabulary Key

Only the meanings given are acceptable

1. cerro—closed, ended, finished, completed
2. su—its
3. temporada—season, schedule
4. de—of
5. como—as
6. correspondía a—befitted, became
7. equipo—team
8. derrotado—defeated, beaten
9. por—by
10. uno—one
11. los—the
12. mejores—best
13. la—the
14. el—the
15. último—last
16. partido—game, contest
17. lugar—place
18. sabado—Saturday
19. pasado—last, the past
20. con—with, against
21. contendiente—opponent, contestant
22. fue—was
23. puntos—points
24. se destacaron—stood out, distinguished themselves, starred
25. especialmente—especially
26. todo—whole, entire
27. presentando—presenting
28. que—which
29. probo—proved
30. juego—play
31. solo—only
32. pudo—could, was able
33. contra—against
34. representando—representing

The marking directions, addressed to the teacher, read as follows:

1. Read the "Directions for Scoring Translation."

2. Compare the pupil's translation with the translation key. When you find in the pupil's translation a sentence which expresses one of the nineteen listed ideas, mark it with the ordinal number of the idea.

3. Mark the pupil's word-meaning sheet (see vocabulary key).

4. Enter the scores on the pupil data sheet and return everything to the office.

The pupil's score on translation was simply the weighted number of these main ideas which the translation contained.

The vocabulary score was the number of words correctly translated. The scorer was supplied with a list of meanings for these words; in some cases as many as four English words were indicated as acceptable translations of the Spanish word. In interpreting this study, the reader should note the restricted and somewhat unconventional use of the expression "vocabulary score." The total score was obtained by adding the vocabulary and translation scores.

The "Pupil Data Sheet" called for the pupil's name, his grade in school, the date of his birth, his age at his last birthday, and the number of semesters in which he had studied each of the foreign languages offered on February 1, 1931.

TABLE I

GAIN IN ABILITY TO INTERPRET AN UNFAMILIAR LANGUAGE, BY NUMBER OF SEMESTERS OF PRIOR STUDY OF ONE, TWO, OR THREE FOREIGN LANGUAGES

No. Semesters	No. Cases	Mean Total Score	Gain	Gain Percent
16-15	1	27	—19.7	—42
14-13	3	47.3	10.9	30
12-11	8	36.4	5.1	16
10-9	7	31.3	3.3	12
8-7	26	28	5.4	24
6-5	34	22.6	3.3	17
4-3	39	19.3	4.5	30
2-1	54	14.8	8.8	147
0	30	6		
N	202			

TABLE II

GAIN IN ABILITY TO INTERPRET AN UNFAMILIAR LANGUAGE, BY NUMBER OF SEMESTERS OF PRIOR STUDY OF A SINGLE FOREIGN LANGUAGE

No. Semesters	No. Cases	Mean Total Score	Gain	Gain Percent
10-9	1	45	18.3	64
8-7	10	28.7	3.2	12
6-5	14	25.5	6.2	32
4-3	39	19.3	4.5	30
2-1	54	14.8	8.8	147
0	30	6		
N	148			

The progress from semester to semester of foreign language study is shown in Tables I and II. The gain for the first year's study is larger than that for any succeeding year. Neglecting the two upper years, in which the number of cases is small, it is seen that progress is negatively accelerated.

A comparison of Tables I and II shows that the gain from a given number of semesters of a single foreign language is very closely similar to the gain from the same number of semesters of two or three languages.

A study of Table III brings out the following facts:

1. The score (vocabulary, translation, or total) shows higher correlation with number of semesters of language study, than with IQ, chronological age, or grade in school. This is true whether boys and girls are considered separately or together.

2. This superiority is greatest in the case of the vocabulary score and least in that of the translation score.

3. IQ and chronological age show higher correlation with the total score than with the vocabulary and translation scores.

4. The girls' scores show consistently higher correlations with all factors than do the boys' scores.

5. The order of importance under the circumstances of this study, as indicated by the correlations, is: number of semesters of language, grade, intelligence quotient, chronological age.

TABLE III

CORRELATIONS OF TOTAL SCORE, VOCABULARY SCORE, AND TRANSLATION SCORE WITH NUMBER OF SEMESTERS OF FOREIGN LANGUAGE STUDY, INTELLIGENCE QUOTIENT, CHRONOLOGICAL AGE, AND GRADE IN SCHOOL

	Total Score			Vocabulary			Translation		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
No. Sem. Lang.	.537	.702	.645	.593	.824	.706	.558	.687	.596
IQ	.439	.734	.567	.291	.458	.366	.180	.364	.258
Chron. Age	.248	.421	.388	.107	.356	.183	.354	.378	.365
Grade	.516	.713	.595	.337	.649	.473	.539	.647	.583

The PE's of the above correlation range from .060 to .024.

TABLE IV

MEAN SCORES IN TESTS; MEAN IQ, MEAN CHRONOLOGICAL AGE, AND MEAN NUMBER OF SEMESTERS OF FOREIGN LANGUAGE STUDY

	Boys	Girls	All Pupils
Total Score	19.2	20.7	19.7
Vocabulary Score	6.6	9.3	7.7
Translation Score	13.1	11.7	12.5
IQ	111.7	112.4	112
Chronological Age	15.8	15.5	15.7
No. Sem. Lang. Study	3.9	4.9	4.3

Table IV shows that the girls made a somewhat better showing than the boys on the test as a whole and were decidedly superior in the vocabulary test, but that the boys were superior to the girls in translation. The girls had elected language to a greater extent than the boys, having had on the average, one semester more of language experience.

Conclusions

The conclusions which are suggested as having general application to language study are as follows:

1. Four factors which affect the ability to get meaning from an unfamiliar language are the following. They are arranged in order of importance as they appear in this study.
   a. Extent of foreign language experience (number of semesters of language study)
   b. Extent of school experience (grade in school)
   c. Mental ability (IQ)
   d. Extent of general experience (Chronological age)

2. This ability improves rapidly during the first year of study of foreign language; the actual gains from the beginning of the second year on are reasonably uniform, but the percentage of gain shows negative acceleration.

3. So far as this ability is concerned, it matters little whether the pupil spends all his language time on one foreign language or on two or more.

4. The gain from language study is more in the direction of vocabulary than in that of general interpretative ability. Girls show a decided vocabulary superiority over boys, while the boys show a slightly superior ability in translation.

DISTRIBUTION AND PERSISTENCE ACCORDING TO PATERNAL OCCUPATIONS REPRESENTED IN THE SECONDARY SCHOOLS IN MICHIGAN[1]

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The Problem

The problem of this study is to investigate the paternal occupations represented in the secondary schools of eight out of fourteen cities in Michigan whose populations are from ten to twenty thousand. Cities of this size were chosen in order to eliminate the single industry situations found in the small agriculture, mining, and lumbering villages and the single type of manufacturing that exists as the important industry in the larger cities.

Cities Studied

The cities selected for this study were Ironwood, Marquette, Sault Sainte Marie, Traverse City, Escanaba, Benton Harbor, Monroe, and Owosso. Completion of this survey was made possible by the coöperation of the school administrators in all of these cities. Figure I illustrates the geographical selection of the eight cities studied. The four communities in the northern peninsula included all but one city of the desired size in that portion of Michigan. In the southern peninsula an attempt was made to select one city from each group of adjacent communities of the size desired with the hope that it might serve as a sample.

Data

A uniform procedure was employed to obtain all the information used in this study. A day was selected by the school administrators so as to avoid all causes for unusual absences due to religious holidays, feast days, or any other occasions. On the day selected each home-room teacher was furnished with an instruction sheet for conducting the project and a sample of the pupil-questionnaire completely filled out. The instruction sheet explained the purpose of the investigation to the teacher. She in turn delivered the same information orally to the pupils. The accuracy of the data in any piece of research is of the most vital importance in considering the validity of the conclusions drawn. The data reported

[1] The data in this paper is taken from a more comprehensive study of the author's. Dear, R. Ernest, *Selection in the Secondary Schools in Michigan*, Master's Thesis, University of Minnesota, August, 1930. Unpublished.

*The underlined communities took part in this study

FIGURE I

CITIES IN MICHIGAN WITH POPULATIONS OF TEN TO TWENTY THOUSAND PEOPLE

here are valid to the extent that the students either knew the answers to the questions asked in the questionnaire or were able to secure accurate information directly from their parents. The data concerning the grade classification of a few pupils was completed only after receiving information from the home-room teachers relative to the items in question. Another fact that made for greater accuracy was that the questionnaire called for specific information since the greatest number of queries could be answered merely by checking the items. In the remaining instances the writing of a number or a word completed the answer to the question.

In order to eliminate any tendency for the students to "color" their replies, their names were not asked for. An additional check on the completion and accuracy of the answers were made by the home-room teachers before the forms were returned to the office. In this last step the teachers made use of the students' initials placed on the backs of the questionnaires. The number of replies corresponded very closely with the total enrollments of various schools. The total number of usable responses was 8,510 and the number included in the enrollments of the schools was 9,690. Thus a return of 87.7 percent was obtained in the study.

VOCATIONS OF FATHERS AND HIGH-SCHOOL ENROLLMENT

The data set forth in this analysis concern the vocations of fathers in relation to the persistence of their children in high school. The classification of occupations used was first utilized in a study by Counts.[2] Table I reveals the occupations, ranked in relative numerical importance from greatest to smallest, of fathers of 8,510 pupils in grades seven to twelve.

TABLE I

PERCENTAGES OF PUPILS IN THE SECONDARY SCHOOLS OF EIGHT MICHIGAN CITIES ARRANGED ACCORDING TO FATHERS' OCCUPATION

Occupational Groups	Percentages
Machine trades	12.9
Building trades	10.2
Managerial service	9.9
Transportation service	8.8
Agricultural service	8.2
Commercial service	6.8
Miners, lumberworkers and fishermen	5.8
Proprietors	5.1
Common labor	4.7
Professional service	2.7
Clerical service	2.7
Miscellaneous trades	2.7
Public service	2.2
Artisan-proprietors	1.8
Printing trades	.7

These rankings indicate that all the labor groups combined had greater proportions of children enrolled in the high schools studied than the non-labor groups combined. This fact is emphasized by the presence of two of the labor groups, the machine and building trades, occupying the two highest places in numerical importance in the combined data for the eight cities. It was evident that children of fathers at the lower vocational levels had as great an opportunity to attend high school as those

[2] Counts, G. S. *Supplementary Educational Monograph*, No. 19 (Chicago: University of Chicago Press, 1922), p. 22.

of fathers in the non-labor groups. The two occupational groups which were reported for the fathers of the smallest percentages of secondary school pupils were artisan-proprietors and the printing trades. There was no evidence in the study to explain this fact.

From the percentages shown in Table II it is evident that the eight cities vary considerably in their industrial character. Mining is an important industry at Ironwood; the building trades and transportation lead the other industries at Escanaba; while Benton Harbor, Monroe, Owosso, and Sault Sainte Marie are most important because of the machine trades. The high-school population reflects these occupational groups in the cities mentioned. Therefore, the situation in which the labor groups outnumbered the professional groups in the high-school population of these cities was to be expected.

The range in the percentages of pupils whose fathers were in the professional service was the most stable of all and varied from one and seven-tenths percent in Sault Sainte Marie to three and four-tenths percent in Traverse City. Similar percentages for the machine trades varied from four and one-tenth percent in Ironwood to 17.5 percent in Benton Harbor; and for the building trades they varied from Ironwood's five and six-tenths percent to Escanaba's 12.4 percent. The percentages of

TABLE II

PERCENTAGES OF ALL PUPILS IN GRADES SEVEN TO TWELVE IN THE FOLLOWING CITIES WHOSE FATHERS WERE IN THE DESIGNATED OCCUPATIONAL GROUPS

Occupational Groups	Benton Harbor	Escanaba	Ironwood	Marquette	Monroe	Owosso	Sault Ste. Marie	Traverse City	Totals
Proprietors	5.7	2.8	4.9	1.8	6.6	3.7	6.9	8.3	5.1
Professional	2.9	2.3	2.2	3.5	3.3	2.4	1.7	3.4	2.7
Managerial service	9.4	8.9	4.0	10.3	16.1	11.7	9.7	9.0	9.9
Commercial service	9.2	7.8	2.7	5.9	5.2	7.2	6.0	10.8	6.8
Clerical service	2.8	2.9	1.5	4.2	2.7	2.2	2.8	2.1	2.7
Agricultural service	11.1	4.9	1.5	2.0	11.0	8.9	8.4	17.4	8.2
Artisan-proprietors	3.8	2.1	1.0	2.4	.5	1.8	1.1	1.3	1.8
Building trades	11.1	12.4	5.6	9.8	10.4	10.4	10.3	11.4	10.2
Machine trades	17.5	11.0	4.1	4.9	16.3	17.2	16.7	5.1	12.9
Printing trades	1.3	.6	.3	.9	1.5	.4	.3	.5	.7
Miscellaneous trades	1.4	4.2	1.7	6.0	2.3	4.7	1.6	1.7	2.7
Transportation service	3.5	11.4	3.9	15.9	3.7	10.4	13.5	7.6	8.8
Public service	1.1	1.2	2.0	5.5	1.4	.7	3.8	1.6	2.2
Personal service	2.2	1.7	1.6	1.9	2.7	1.4	1.4	3.4	2.0
Miners, lumber-workers, fishermen		3.7	35.7	3.4	1.5	.4	.9	.6	5.8
Common labor	3.8	9.4	10.1	3.2	3.5	2.4	2.2	3.7	4.7
Unknown	13.2	12.7	17.2	19.3	11.3	14.1	12.7	12.1	12.8
Totals	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total No. of Students	1150	761	1573	1142	912	1125	904	943	8510

pupils whose fathers were classified in the managerial service, the third group in importance, changed among the cities studied from four percent to 16.1 percent. The variations among these communities might probably be explained by the differences in their industries rather than by the factor of sociological selection. This raises a question as to whether there is such a thing as sociological selection in the high-school population of small communities.

TABLE III

THE PERCENTAGES OF THE PUPILS STUDIED WHOSE FATHERS WERE ENGAGED IN THE DESIGNATED OCCUPATIONS ACCORDING TO THE FOLLOWING INVESTIGATORS

Paternal Occupations	W. L. Uhl* in Wisconsin 19,687 Pupils	G. S. Counts† in Four Cities 17,256 Pupils	Eight Cities in Michigan 8,510 Pupils
Proprietors	11.3	19.8	5.1
Professional service	4.9	9.4	2.8
Managerial service	6.8	16.5	9.2
Commercial service	5.9	9.5	6.6
Clerical service	2.2	5.8	2.7
Agricultural service	28.9	2.4	8.2
Artisan-proprietors	3.2	4.2	1.8
Building trades	4.7	7.7	10.2
Machine trades	5.3	7.1	12.9
Printing trades	.3	1.1	.7
Miscellaneous trades	3.4	3.8	3.0
Transportation service	4.4	4.9	8.7
Public service	1.1	1.6	2.3
Personal service	.9	1.4	2.3
Miners, lumbermen, fishermen	1.2	.4	5.8
Common labor	9.4	1.2	4.8
Unknown	4.9	3.2	12.9
Home service	1.2		
Totals	100.0	100.0	100.0

* Uhl, W. L. "Selection in the Secondary Schools of Wisconsin," *Principles of Secondary Education* (Newark: Silver, Burdett and Co., 1925), p. 215.

† Counts, G. S. *Supplementary Educational Monograph*, No. 19 (Chicago: University of Chicago Press, 1922), p. 22.

COMPARISON WITH OTHER STUDIES

The facts set forth in Table III portray Counts' data as showing that the greatest proportion of the pupils enrolled in grades nine to twelve had fathers in the non-labor groups, such as, proprietorial, professional, managerial, commercial, and clerical service. In the Wisconsin study, agricultural service, as a paternal occupation, was represented by 28.9 percent of the pupils which was slightly greater than that of all the non-labor groups together. In the latter, proprietors ranked first. In the present study the labor groups had the greatest representation in the secondary school enrollment (grades seven to twelve) which is in direct

contrast with the findings of Counts. The two aggregations, building and machine trades, had a greater percentage of the total secondary school population in Michigan than did the five non-labor groups. The managerial service was the best represented of the occupations at the upper levels.

The fact that eight and two-tenths percent of the paternal occupations were in agricultural lines was due to the attendance of children from adjacent rural areas. Although this figure was much smaller than that discovered in Wisconsin, 28.9 percent, it was much larger than that found in the four communities studied by Counts. The differences might be accounted for by the size of the cities selected in the latter study, wherein the children of farmers do not attend in such large proportions as the children from other occupational groups. The high percentages of paternal occupations reported in the machine trades might be explained by the great number of shops in the communities selected in Michigan. The building trades had a much larger proportion of the total enrollments in the present study than they did in either of the other studies. This may be due to the necessary increases in the housing and business structures of some of these cities which are rapidly increasing in population.

In Michigan the percentages of fathers of high-school pupils engaged in transportation service is greater than in either of the other studies because of the great water boundaries of the State and the necessity of shipping the finished and raw products to the markets. In general, there is a much closer parallel between the Michigan and the Wisconsin data than between the Michigan data and those of Counts. The similarity between Michigan and Wisconsin is probably due to the fact that the two states are adjacent and that the occupations are similar. The Wisconsin figures set forth the agricultural, proprietors, and common labor groups in the places of greatest importance while the facts in this study put the machine trades, building trades, and managerial service in the same relative positions. This placement is in direct contrast to the situation in the four large American cities studied by Counts, wherein the four non-labor groups possessed the greatest representations. Thus it appears that the smaller community does not experience the great influence of selection in high school according to paternal occupation as does the larger city high schools.

VOCATIONS OF FATHERS AND PROGRESS IN HIGH SCHOOL

The continuance in school of children whose fathers are employed in the variety of callings classified will be set forth and analyzed in the following section. Table IV shows the tendency of children representing various paternal occupations to persist in approximately the same proportions in the seventh, ninth, and twelfth grades of the selected cities in Michigan.

TABLE IV

PATERNAL OCCUPATIONS IN THE SEVENTH, NINTH, AND TWELFTH GRADES OF THE CITIES STUDIED

Occupational Groups	Numbers and Percentages of Pupils Whose Fathers Were Engaged in the Designated Occupations from the Following Grades		
	Seventh Percent	Ninth Percent	Twelfth Percent
Proprietors	3.5	4.2	6.9
Professional service	2.6	2.2	3.0
Managerial service	6.6	9.4	10.6
Commercial service	4.9	6.6	6.7
Clerical service	2.8	2.3	2.3
Agricultural service	2.0	10.9	12.6
Artisan-proprietors	2.4	2.0	1.5
Building trades	9.8	10.1	9.3
Machine trades	13.9	13.1	9.8
Printing trades	.8	.9	.9
Miscellaneous trades	4.3	3.4	1.8
Transportation service	8.4	8.8	8.1
Public service	2.8	2.0	1.2
Personal service	2.0	1.8	1.3
Miners, lumberworkers, fishermen	13.0	5.2	5.8
Common labor	7.0	4.6	3.9
Unknown	13.2	12.5	14.1
Totals in percentage	100.0	100.0	100.0
Totals in numbers	1683	1722	1026

The increase in numbers occurring in grade nine in several occupational classifications is explainable as being the contribution of pupils from the non-public schools to the high school enrollment at the termination of the eighth grade. The increase sustained between grades seven and twelve in the proportions of children whose fathers belonged to the non-labor groups seem to indicate a tendency of these children to continue longer in high school than the children of laborers. The percentage of children of proprietors showed an increase from three and five-tenths percent in the seventh grade to six and four-tenths percent in the twelfth. The children of business managers increased from six-tenths to ten and six-tenths percent during the same period. The children of professional men increased from two and six-tenths to three percent, while those of

business men increased from four and nine-tenths to six and seven-tenths percent.

Among the labor groups the children of farm laborers increased from two percent in the seventh grade to twelve and six-tenths in the twelfth. Although this increase was due, in part, to a tendency of these children to continue in high school, it was chiefly due to the additions in enrollment, previously mentioned, in the ninth grade. The only remaining labor group showing a proportional increase between the seventh and twelfth grades was that of the printing trades, which, by an increase of one-tenth of one percent, showed a tendency of this small group to keep its children in high school longer than was true of the other labor groups.

The groups whose representation in high school declined between the seventh and twelfth grades includes those in clerical service, building trades, the work of artisan-proprietors, transportation, miscellaneous trades, personal service, public service, mining, lumbering, and fishing. The facts when analyzed indicate that men in the non-labor types of employment and those engaged in either farming or printing kept their children in high school longer than did men in other occupations. The lack of persistence of children whose fathers were engaged in other types of labor indicates a relatively longer continuance in the secondary school for the children of farmers and printers.

MOTOR ABILITY OF HIGH-SCHOOL GIRLS

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THE Brace Scale of Motor Ability Tests[1] and the Pressey Senior Classification Test for grades 7 to 12 were administered to 333 girls in two vocational high schools of Minneapolis, Minnesota. The chronological age, height, and weight of each girl were also obtained.

The means and standard deviations of the Brace Motor Ability Scale Scores, Pressey intelligence quotients, C. A. in months, height in inches, and weight in pounds were calculated and are shown in Table I.

TABLE I

MEANS AND STANDARD DEVIATIONS OF BRACE MOTOR ABILITY SCALE SCORES, PRESSEY INTELLIGENCE QUOTIENTS, CHRONOLOGICAL AGES IN MONTHS, HEIGHT IN INCHES, AND WEIGHT IN POUNDS

Measures	Means	Standard Deviations
Brace Scale Scores	45.8	9.15
Pressey IQ's	96.7	10.14
C. A. Months	192.0	13.35
Height Inches	62.8	2.94
Weight Pounds	115.9	17.76

The interrelationships among the five variables included in this study were computed. The measures correlated, the Pearson r's, and the probable errors of the r's are shown in Table II.

TABLE II

PEARSON COEFFICIENTS OF CORRELATION AMONG BRACE MOTOR ABILITY SCALE SCORES, PRESSEY INTELLIGENCE QUOTIENTS, CHRONOLOGICAL AGES IN MONTHS, HEIGHT IN INCHES, AND WEIGHT IN POUNDS

Variables Correlated	r	P.E.$_r$
Brace Scale Scores and Pressey I.Q.'s	—.243	.035
Brace Scale Scores and C.A. Months	.066	.037
Brace Scale Scores and Height Inches	—.089	.036
Brace Scale Scores and Weight Pounds	—.174	.036
Pressey I.Q.'s and C.A. Months	—.198	.036
Pressey I.Q.'s and Height Inches	.029	.037
Pressey I.Q.'s and Weight Pounds	.039	.037
C.A. Months and Height Inches	.007	.037
C.A. Months and Weight Pounds	.141	.036
Height Inches and Weight Pounds	.382	.032

The correlation coefficient between the Brace Scale Scores and the Pressey I.Q.'s represents a significant, negative relationship. Holding

[1] Brace, David Kingsley. *Measuring Motor Ability: A Scale of Motor Ability Tests* (New York: A. S. Barnes and Company, 1930), 138 pp.

chronological age constant by partial correlation, the r between the Brace Scale Scores and the Pressey I.Q.'s is also significant, being —.235. Likewise, holding weight in pounds constant by partial correlation, the r between the Brace Scale Scores and the Pressey I.Q.'s is —.240.

Between motor ability and intelligence, as measured, respectively, by the Brace Motor Ability Tests and the Thorndike Psychological Examination for High School Graduates, Brace[2] reported an r of —.159 ± .063, the subjects being 109 women majoring in physical education at Teachers College, Columbia University.

The facts presented clearly show that measures of intelligence, as well as chronological age, height, and weight, are of little practical value for predicting the motor abilities measured by the Brace tests.

[2] Brace. *Ibid.*, p. 88.

RESULTS OF AN ORAL TRUE-FALSE TEST

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and
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RECENTLY it was desired to present to a class in junior high-school procedures an important topic that is not adequately or briefly enough treated in printed form to be assigned for reading by the students. As the time apportioned for the topic was limited to two double class periods, the senior author, for economy, wrote out an exposition and read it orally, warning the students that they would be examined on it immediately at the conclusion of the presentation. Half of the treatment was read at one class meeting, an oral true-false test of 50 items following. At the next meeting of the class the second half was read, a true-false test of 51 items being given *before* and after the presentation.

There was, naturally, a question of the reliability of an oral true-false test. Stump[1] had reported an average correlation of .47 between the results of a true-false test given orally to four relatively small classes, the number of items not being stated, and the results of the same test presented a week later in mimeographed form. He also found that the former results correlated considerably better with intelligence scores than did the latter. Lehman[2] had reported that with nine classes the correlation of consistency for an oral test followed immediately by the same test in mimeographed form was practically identical, as was the correlation of the odd items of the former with the even items of the latter, and vice versa. Tiegs,[3] citing Stump and also Crawford, concludes that the orally presented test is as good a measuring device as one given in mimeographed form.

The tests reported in this article seemed to the authors very easy; there is no question but that many of the items could have been answered correctly from previous knowledge or from common sense, as was evidenced by the results of the second test, which was given before the lecture was read. The results, however, scored R-2W, showed the usual

[1] Stump, N. F. "Oral versus Printed Method in the Presentation of the True-False Examination," *Journal of Educational Research*, XVIII (December, 1928), pp. 423-424.

[2] Lehman, Harvey. "The Oral versus the Mimeographed True-False Test," *School and Society*, XXX (October 5, 1929), pp. 470-472.

[3] Tiegs, E. W. *Tests and Measures for Teachers*, pp. 66, 67; 272, 273.

range. Test A, 50 true-false items, presented to 49 students after a ninety minute lecture, had a range of scores from 24 to 50. Mean = 43.8; $\sigma = 5.90$. The semi-interquartile range was from 39.82 to 47.78. Test B, 51 true-false items, presented immediately *before* the second lecture, had a range of scores from −3 to 37. Mean = 25.54; $\sigma = 7.59$; with $Q_3 - Q_1 = 10.24$. Test C, the same test presented immediately after the lecture, had a range of 16-47. Mean = 36.44; $\sigma = 6.63$; with $Q_3 - Q_1 = 8.94$. The difference between the means of Test B and Test C showed that the class had learned considerable from the lecture and that the dispersal had been materially reduced. By dividing the obtained difference between the means of tests B and C by the σ of the difference we got a quotient of 6.98, which gives conclusive evidence that there was a real gain from hearing the lecture. Of course this was to be expected. The average gain was 10.8 points; the range of gains was from one to 26. Those above the median on Test B gained an average of 8.55 points; those below the median, 15.1 points. The correlation between the results of Test B and C was .44.

The reliability of the test was fairly good. Between Test A, on the first half of the lecture, and Test B, given after the second half, it was .69 ± .06. The coefficient of reliability for Test C, by the Spearman-Brown formula, was .68 ± .06. Stepping the test up to 100 items, the reliability would be .81. The correlation between two tests given similarly in 1931 with another class was .63 ± .06.

The authors conclude, both from the statistical data and from their impressions, that the oral true-false test as a measure of immediate recall compares very favorably with such a test presented in visual form. Their conclusion is entirely consistent, therefore, with the findings of other reported studies. If similar results are found for recall after longer periods, the labor of printing or mimeographing such tests can safely be abandoned.

BASIC COURSES AND TOPICS IN THE TRAINING OF THE ELEMENTARY SCHOOL PRINCIPAL

W. C. McGinnis
Superintendent of Schools, Perth Amboy, N. J.

WHAT professional courses and topics are desirable and basic in the training of the elementary school principal? Since current professional literature and current practice in schools of education give diversified answers, the following questionnaire was sent to 221 professors of education, 225 city superintendents, and 225 elementary school principals in forty-eight states. Replies were received from fifty-five percent of the professors of education, sixty-six percent of the city superintendents, and forty-six percent of the elementary school principals, all forty-eight states being represented.

PUBLIC SCHOOLS
PERTH AMBOY, N. J.

February 15, 1932.

To Professors of Education,
City Superintendents
And Elementary School Principals:

Will you please answer the questions listed below and return the questionnaire to me? If you want to receive a copy of the summary of the answers, please place a check here .....

Questions: Which of the courses listed below and which of the major topics under each course do you consider desirable *basic* courses and topic for the professional training of the elementary school principals? Please answer by placing a check mark (√) after the courses and topics you would include.

Very truly yours,

W. C. McGinnis,
Superintendent of Schools.

COURSE	MAJOR TOPICS	SHOULD BE INCLUDED
I. History of Education	1. Types of early European schools.....	.....
	2. Types of early American schools.....	.....
	3. Outstanding figures in foreign education....	.....
	4. Great American Educators.....	.....
	5. Evolution of the Elementary School.....	.....
	6.	.....
	7.	.....
	8.	.....

II. Philosophy of Education	1. What is education?	.....
	2. What social agencies educate the young?	.....
	3. What place do public and private schools have?	.....
	4. What are the aims of education in a democratic society?	.....
	5. Educational theory	.....
	6. Current differing philosophies	.....
	7. The relation and difference between philosophy and science in education?	.....
	8.	.....
	9.	.....
III. Educational Psychology	1. Mental and educational tests	.....
	2. Elementary educational statistics	.....
	3. Psychology of adolescence	.....
	4. Mental adjustments	.....
	5. Diagnosis and remedies	.....
	6. Psychology of elementary school subjects	.....
	7. Current differing psychologies	.....
	8.	.....
	9.	.....
	10.	.....
IV. Elementary Supervision	1. Function of principal	.....
	2. Function of supervisors	.....
	3. Principles of administration and supervision	.....
	4. Diagnostic and remedial procedures	.....
	5. The curriculum	.....
	6. Methods of teaching	.....
	7. The use of scientific method in education	.....
	8.	.....
	9.	.....
V. Sociology	1. Forms of control	.....
	2. Social evolution	.....
	3. Function of school in society	.....
	4.	.....
	5.	.....
	6.	.....

What other courses do you consider basic in the training of a principal?

1. ..... 3. .....

2. ..... 4. .....

Answered by..... College of City.....

TABLE I

NUMBER AND PERCENT OF PROFESSORS OF EDUCATION, CITY SUPERINTENDENTS, AND ELEMENTARY SCHOOL PRINCIPALS WHO SAY CERTAIN COURSES ARE DESIRABLE BASIC COURSES

	Superintendents		Principals		Professors		
	No.	%	No.	%	No.	%	Total
History of Education	123	90	90	88	123	92	336
Philosophy of Education	125	91	97	95	128	97	350
Educational Psychology	136	99	102	100	132	100	370
Elementary Supervision	137	100	101	99	132	100	370
Sociology	126	91	94	93	113	93	333

TABLE II

NUMBER AND PERCENT OF SUPERINTENDENTS, PRINCIPALS AND PROFESSORS OF EDUCATION WHO SAY CERTAIN TOPICS ARE DESIRABLE IN THE TRAINING OF ELEMENTARY SCHOOL PRINCIPALS

		Superintendents	Percent	Principals	Percent	Professors	Percent	Total	Superintendents	Principals	Professors
Questionnaires Returned		137	66	102	46	132	55		Courses Omitted in Answers		
						COURSE I			14	12	9
Topics	1	43	32	29	29	45	34	117			
	2	84	61	53	51	75	56	212			
	3	42	31	42	41	50	37	134			
	4	84	61	69	67	74	56	227			
	5	118	86	97	95	119	90	334			
						COURSE II			8	3	4
	1	97	70	63	61	104	78	264			
	2	100	71	78	76	114	86	292			
	3	50	37	32	31	73	55	155			
	4	120	87	101	99	125	95	346			
	5	80	58	51	50	86	65	217			
	6	74	53	51	50	97	74	222			
	7	68	49	43	42	77	60	188			
						COURSE III			1	0	0
	1	125	91	88	86	131	99	344			
	2	87	63	48	46	106	80	241			
	3	113	83	89	87	100	76	302			
	4	89	64	73	71	90	68	252			
	5	108	78	87	85	111	84	306			
	6	124	90	89	87	128	99	341			
	7	51	37	43	42	58	45	152			
						COURSE IV			0	1	0
	1	126	92	96	94	130	98	352			
	2	111	81	76	74	127	97	314			
	3	131	95	99	97	125	95	355			
	4	114	84	90	88	126	95	330			
	5	121	88	94	92	129	98	344			
	6	124	90	94	92	123	93	341			
	7	101	74	83	81	108	81	292			
						COURSE V			11	8	19
	1	77	56	56	54	78	58	211			
	2	67	48	47	45	72	55	186			
	3	122	89	96	94	116	88	334			

Table I shows that each of the five courses is considered by superintendents, professors of education, and principals to be a desirable basic course for the training of the elementary school principal. History of education received the lowest endorsement, but even that course was approved by ninety percent of those who returned questionnaires. The four other courses received practically one hundred percent approval.

The tabulation of the data on topics (Table II) shows less agreement, although in three of the five courses the agreement on topics is consistently high.

These data tend to the conclusion that the lack of agreement as to what constitutes desirable basic courses and desirable basic topics in the professional training of the elementary school principal is not as great as it is made to appear in current educational literature.

RELATIVE DIFFICULTY OF VOCABULARY LISTS IN THE STANFORD-BINET SCALE

MARY V. LOUDEN
University of Pittsburgh

THOSE who make frequent use of the Stanford Revision of the Binet Scale would probably be unanimous in the opinion that administration of the vocabulary test is a drawn-out, time-consuming process, becoming almost an ordeal with many dull subjects, especially where responses are slow. Whether that be the case or not, there seems to be a considerable tendency on the part of examiners to abbreviate the test by using only one of the fifty-word lists, with a feeling that whatever greater accuracy in measurement accrues from the use of the entire one hundred-word list does not justify the demand it makes on time and energy. Terman has said, "Time may be saved, with little loss of accuracy, by giving one list only, and in this case List I should be used."[1] On the other hand, McFadden found that "The first list of words in the Vocabulary Test (as on the record booklet published by Houghton Mifflin Company) is definitely easier than the second list, so far as the first fifteen or so words are concerned."[2] So one is led to ask in what proportion of cases, and to what degree such an abbreviation may distort the picture produced by the test.

DEFINITION OF THE PROBLEM

This investigation is the immediate outgrowth of an observation made by one of the writer's colleagues, namely, that in testing failing and probation college students there were frequent and relatively large differences in the number of words defined on the two fifty-word lists. Now in advising such students, it really makes considerable difference whether the vocabulary is barely that of a 12-year-old, or very nearly that of an average adult (16 years old); as illustrated by the case of P. M. in this study who scored, by List I alone, 62; by the combined lists, 52½; and by List II, 43 words. (Twice the exact number of words defined is taken as the score when either list is used alone.) The most vital question to be

[1] Terman, L. M. *Condensed Guide for the Stanford Revision of the Binet-Simon Tests* (Boston: Houghton Mifflin, 1920), p. 32.

[2] McFadden, J. H. *Differential Responses of Normal and Feeble-minded Subjects of Equal Mental Age, on the Kent Rosanof Free Association Test and the Stanford Revision of the Binet-Simon Intelligence Test.* Mental Measurement Monograph No. 7 (February, 1931), p. 82.

answered then, is, what percentage of cases scoring on the vocabulary test would score at either a higher or a lower age level by the use of either fifty-word list than by the use of the entire one hundred-word scale. Further aid in an evaluation of the inequality of the two lists lies in the answer to the following questions:

1. Is there a statistically reliable difference between scores on the two fifty-word lists?
2. How does the relative difficulty of the two lists vary at the several age levels?
3. How great is the disparity of scores, for the same individual, derived from List I, List II, or the combined lists?

SOURCE AND STATISTICAL TREATMENT OF DATA

The files in the Psychological Clinic of the University of Pittsburgh were culled for all records of cases to whom both lists of the vocabulary had been given. These included the Binet records of all the variety of cases who find their way to such a clinic, from the superior child to the failing college student, the grossly defective, and the "Penal Affairs" case. If the total vocabulary score is less than ten, there can be no difference in age level by use of either list alone, regardless of how the words passed are distributed. For that reason, all such cases were discarded, and from a total of about 1300[3] cases there remained for study, 218 cases, which were submitted to the following statistical treatment.

I. The 218 cases were sorted into six groups on the basis of the score made on the combined lists (100 words):

1. Those failing to receive credit at the 8-yr. level,
2. Those receiving credit at the 8-yr. level,
3. Those receiving credit at the 10-yr. level,
4. Those receiving credit at the 12-yr. level,
5. Those receiving credit at the 14-yr. level,
6. Those receiving credit at and above the adult level.

Average and superior adult levels were considered together because the small number of cases who scored at either of these levels alone would not justify statistical treatment.

(a) For each of the above groups, the mean score on each list was found, and measures of reliability of the differences were calcu-

[3] Louden, Mary V. Same cases studied by author with respect to "Relative Difficulty of Stanford-Binet Vocabulary for Bright and Dull Subjects of the Same Mental Age." (Unpublished study).

TABLE I

RELATIVE PERFORMANCE OF 218 CASES ON THE TWO LISTS OF STANFORD-BINET VOCABULARY

Levels on combined forms	No. cases	Percent in which number words defined on List I			Percent scoring at the same or different age levels by use of						Mean Score on form				Number cases whose M. A., due to list used, varies				
					List I			List II			I	II							
		Exceeded number on List II	Less than on List II	Equals number on List II	Higher than on combined lists	Lower than on combined lists	Same as on combined lists	Higher than on combined lists	Lower than on combined lists	Same as on combined lists			Difference: Mean I—Mean II	Difference / Diff.	2 Mo.	3 Mo.	4 Mo.	5 Mo.	6 Mo.
BELOW 8-year (10-19 words)	33	75.7	6.1	18.18	36.7		63.3	3.0		97.0	8.83	5.89	2.94	6.5	13				
8-year (20-29 words)	23	91.3	8.7	0.0	30.4	4.3	65.3	0.0	47.8	52.2	13.89	9.80	4.09	6.9	13		5		
10-year (30-39 words)	25	84.0	12.0	4.0	32.0	4.0	64.0	4.0	48.0	48.0	18.72	15.20	3.52	5.2	18		4		
12-year (40-49 words)	34	58.8	29.4	11.8	32.4	2.9	64.7	2.9	11.8	85.2	23.35	22.13	1.22	2.5		16			1
14-year (50-64 words)	74	47.3	43.24	9.46	1.35	2.7	96.0	5.4	10.8	83.8	28.16	27.98	0.18	0.4			15		
ADULT average-19, superior-10 (65-100 words)	29	17.2	69.0	13.8	0.0	20.7	79.3	13.8	0.0	86.2	35.78	37.53	1.75	1.9				3	7
TOTAL	218														44	16	24	3	8

lated, using the formula, $\frac{\text{Difference}}{\sigma \text{ diff.}}$.

(b) Percentages at each age level were calculated for those who defined *more words* on List I than on List II, *fewer words* on I than on II, and an *equal number* on the two lists.

(c) The percentage of each of the six groups who, by the use of List I alone, scored at a *higher age level* than by the use of the combined lists was found, and similarly calculations were made for those who by List I alone, scored at a *lower age level* than by the use of both lists; those who by List II alone scored at a *higher age level* than by the use of the combined lists, and those who by List II alone scored at a *lower age level* than by use of the combined lists.

(d) The actual variation in mental age, depending upon whether the score was based upon List I, List II, or both, was found for each case.

II. To note whether similar differences between the two lists existed for bright and dull subjects, twenty-eight cases with I.Q.'s ranging from 43 to 78 were found, each of whom could be matched with a brighter case whose IQ. was 95 or higher. For each of these two groups comparisons of mean scores on List I, List II, and the combined lists were made. These fifty-six cases were drawn from the larger group of 218.

FINDINGS

The absolute difference in the number of words defined on the two lists varied in the group of 218 cases from 0 to 10 words. The difference between the two lists at the various levels, measured by the difference between the group mean scores on each list, varied from 0.18 to 4.09 words (Table I). These differences below the adult level are all in favor of List I. At the fourteen-year level, the difference is least (0.18) and the coefficient of reliability is very small. At the adult levels the difference is more than nine times the above amount, and in favor of the second list. For the three groups scoring less than forty words, the differences between the two lists are markedly greater than at any level beyond that point; and those differences would appear to be true differences, being 6.5, 6.9 and 5.2 times their respective standard errors. However, due to the small number of cases at most of the levels, no great importance is attached to any measures of reliability presented in this study.

So far as this study is concerned, it is only of secondary interest to know that statistical treatment shows that in more than ninety-nine chances in a hundred the difference between the scores on these two lists will be greater than zero. Of far more practical value would be a knowledge of whether at any level, the scores in mental age may be spuriously high or low in any considerable number of cases, due to the use of either fifty-word list alone. A survey of the mean scores derived at each level, however, does indicate some marked trends. Below the twelve-year level,

TABLE II

PERFORMANCE OF TWENTY-EIGHT BRIGHT AND TWENTY-EIGHT DULL SUBJECTS ON EACH LIST OF THE STANFORD-BINET VOCABULARY

	I.Q.		MENTAL AGE		CHRONOLOGICAL AGE		MEAN VOCABULARY SCORES FORM		
	Range	Median	Range	Median	Range	Median	I and II	I	II
DULL	43–78	70	6 yr. 2 mo.	9 yr.	8 yr. 6 mo.	14 yr.	20.1	23.0	17.0
			12 yr. 0 mo.	4½ mo.	19 yr. 7 mo.	10 mo.			
BRIGHT	95–179	121	6 yr. 2 mo.	9 yr.	4 yr. 2 mo.	7 yr.	23.6	27.1	19.8
			12 yr. 8 mo.	3½ mo.	12 yr. 1 mo.	10 mo.			

List I does appear to be decidedly easier than List II, and from a comparison of scores made by twenty-eight dull cases with those made by twenty-eight bright cases having the same mental ages (summarized in Table II) there is no reason to believe that this generalization is not equally true for the bright and the dull. At the twelve-year and the fourteen-year levels, the two lists approximate equality of difficulty, but beyond those levels they tend to diverge again and List I becomes the more difficult.

Let us now approach the same problem from a different angle. If the two lists are alternate forms of comparatively equal difficulty, one may expect those who score higher on one form than on the other to be distributed in chance order. That is about what occurred in the group of seventy-four cases studied at the fourteen-year level: 47 percent excelled on List I, and 43 Percent on List II. Below that level, from 58.8 percent to 91.3 percent scored higher on List I than on List II, while from 6.1 percent to 29.4 percent scored higher on List II than on I. On the adult levels, the picture is suddenly changed and only 17.2 percent scored higher on List I, while 69 percent excelled on List II. Table I permits a comparison of such percentages at each of the age levels studied.

When attention is turned to the more significant question of whether these differences are reflected in the mental-age rating of the subjects, it

is found that by using List I alone, the combined lists, and List II alone, respectively, there resulted for this group a variation in mental age of two months in forty-four cases, of three months in sixteen cases, of four months in twenty-four cases, of five months in three cases, and of six months in eight cases.

Despite the fact that two months or even six months may make no significant change in I.Q., depending of course upon the age level at which they are to be added or subtracted, these differences remain important. It is readily acknowledged that with the obvious weaknesses removed and the best known procedure adhered to, our mental tests remain but crude measuring sticks; and their measures, rough approximations. But it is seldom, perhaps, that a subject is given a clinical examination for the mere satisfaction of establishing his I.Q. For all diagnostic and prognostic purposes, where analysis of performance on individual tests is the important thing, these differences loom large. In attempting a problem of educational adjustment it would make considerable difference whether the subject scored 18, (a vocabulary not equal to that of the average eight-year-old), or 36, (approaching the norm of the average twelve-year-old), as did A. K. by use of List II and List I, respectively.

If such variations in age level occur in any considerable number of cases, further standardization of procedure with respect to the list or lists used, would seem important. With these 218 cases it developed that approximately one-third of each group through the twelve-year level would have scored at a higher age level had the vocabulary scores been based upon List I alone than they did by use of the combined lists. Those receiving such benefit at the fourteen-year and adult levels are reduced to 1.35 percent and .0 percent respectively; but more than one-fifth of those scoring at the adult levels would have suffered a decrease in mental age by the use of List I alone. At all levels below adult, the number of cases so penalized seems negligible, constituting from 2.7 percent to 4.3 percent of their respective groups. Had List II been used alone the tendency would have been to have scored at an *age level lower* than that reached on the one hundred-word list, resulting in lower mental ages in almost half the cases at the eight-year and ten-year levels and in approximately one-ninth of the cases at the twelve-year and fourteen-year levels. The percentage of cases receiving *increased mental age* by use of List II alone, ranges from .0 percent to 5.4 percent below the adult level, where 13.8 percent would have been so benefited. That figure really

conceals the true condition with respect to List II on the adult levels, since those who scored superior adult (75) on the combined lists, have no opportunity to receive more credit on either form alone, although the score so derived may be eighty-eight or one hundred. That means that the four cases (13.8 percent of the adult group) whose mental age would have been increased by the use of List II alone, fell entirely within the group of nineteen scoring at the average adult level and constitute approximately one-fifth of that group. No case scoring at either the average or superior adult level would have suffered a decrease in mental age due to the use of List II alone. Table I furnishes a more detailed tabulation of these findings.

CONCLUSIONS

By each of the three methods of comparison (1) percentage defining more words or fewer words on List I than on List II; (2) the difference between mean scores on the two lists at each age level; (3) the percentage of cases whose mental age is raised or lowered by the use of either list alone, List I was decidedly easier than List II for this group on the lower levels; approximately equal to List II at the fourteen-year level; and more difficult than II on the two adult levels.

With reference to results on the one hundred-word list, mental ages judged by vocabulary scores are relatively high if scores are based on List I alone, and relatively low if based on List II alone below the fourteen-year level. On the adult levels, this relation between the two lists is reversed.

In cases of retests, individuals previously scoring superior vocabularies would tend toward mediocrity or inferiority with maturity, or vice versa, depending upon which of the two lists was used by the examiner.

Further study of this problem based upon a greater number of cases, especially at the adult levels, is needed. Any procedure that materially changes the score of from one-fifth to one-half of the cases tested is critical, and until we have some convincing data to the contrary, it would seem desirable to use the combined lists on which the Stanford standardization was based.

SIGNIFICANT CHANGES IN THE CURVE OF ELIMINATION SINCE 1900

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University of Pennsylvania

IN 1907, Dr. Edward L. Thorndike made a study on "Elimination of Pupils from School."[1] His findings were based on enrollment data from twenty-three cities which were chosen because the data were available in Teachers College Library, Columbia University. From these data Thorndike determined answers to the following questions: "Of one hundred pupils entering school, how many drop out at each grade? Of one hundred pupils in any grade, how many are lost before the next grade?" It is interesting to note the answers to these questions for more recent years and to compare them with the answers found by Thorndike for the years immediately following the opening of the century. The intervening period has been one of radical changes in organization, administration, curricular offerings, and methods of teaching in our schools. The junior high school has been developed as an institution to bridge the gap between the eighth grade and the first year of high school with the hope of retaining pupils in school for a longer time. The purpose of this study has been to discover the nature of the changes in elimination since 1900 and to determine what evidence there is that the junior high school is responsible for them.

The grade enrollments in sixteen of the twenty-three cities studied by Thorndike were secured for the school terms 1908-9, 1913-14, 1918-19, 1923-24, and 1928-29 on forms sent to all the cities. From these enrollment data and those presented by Thorndike, the ratio of the number of pupils in a given grade to the average number of pupils in the first three grades was calculated for each city for each year studied; that is, the average number of pupils in the first three grades was considered as the number of pupils entering school and was used as the basis in computing the percentage of pupils remaining in each grade. The data were studied by the same methods that Thorndike used in 1907 so as to provide a reliable basis for comparison. The type of school organization in use in each city, that is, the 8-4, 6-2-4, 6-3-3, or 6-6 plan of dividing the school system into units, with a statement of the years during which

[1] Thorndike, Edward L. *Elimination of Pupils from School.* Bulletin No. 4, Washington: U. S. Bureau of Education, 1907.

and the extent to which each was used, was also secured so that elimination in cities operating on the junior high school plan might be compared with that in cities not having the junior high school.

Figure I compares the course of elimination in these sixteen cities around 1900 with that since 1918. The most outstanding difference in the general features of the two curves is the shift in the dip in the

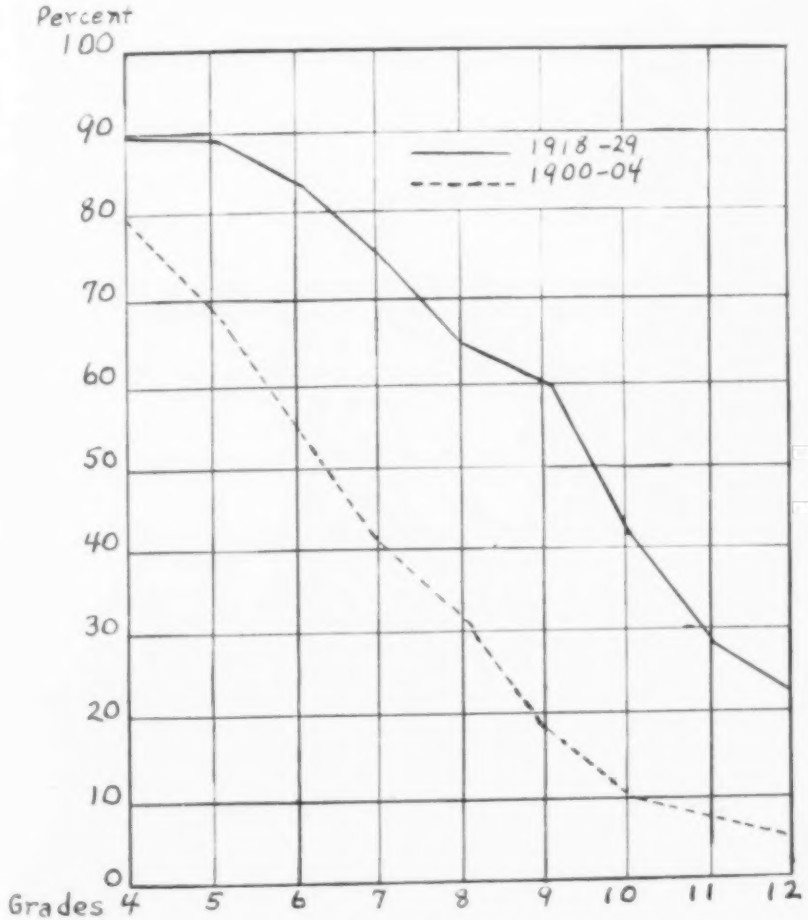

FIGURE I

CHANGES IN THE CURVE OF ELIMINATION. BASED ON THORNDIKE'S DATA FOR 1900-1904 AND THAT FOR THE SAME CITIES, 1918-19, 1923-24, AND 1928-29

curve during recent years. Around 1900, most of the elimination had taken place before the first year of the high school, there being comparatively very little elimination during the high school years. Now more elimination takes place in the high school than in grades four to nine. By the method of computing elimination used here, 81.7 percent

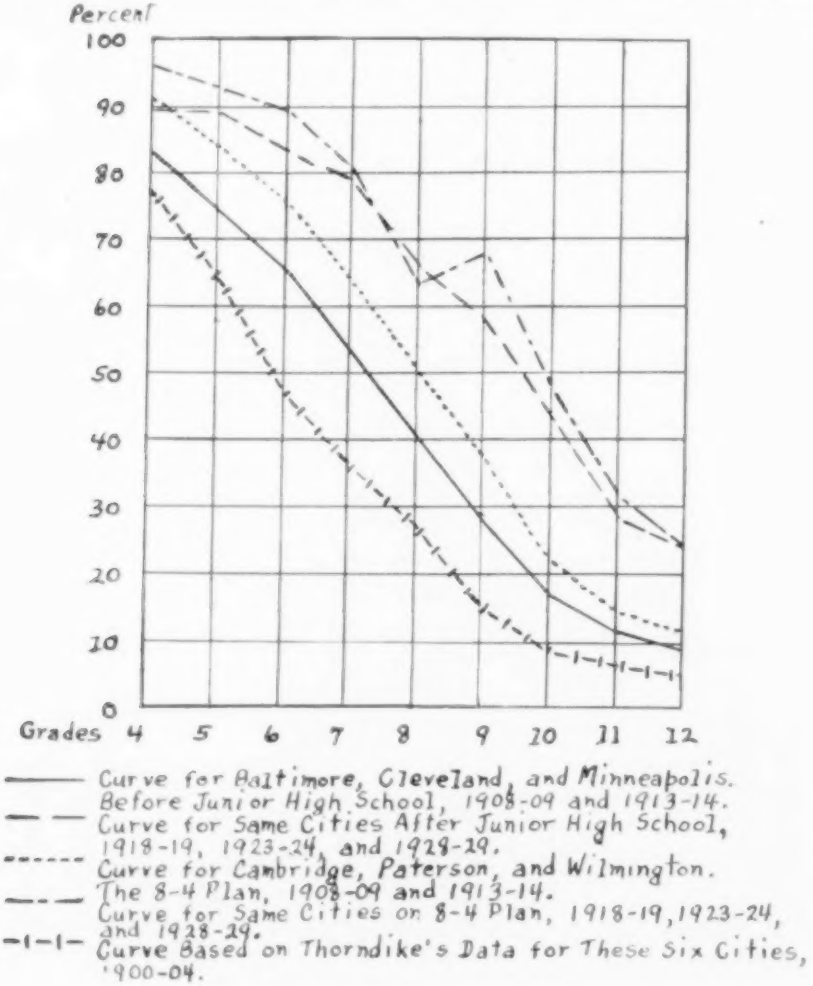
Percent
100
90
80
70
60
50
40
30
20
10
0
Grades 4 5 6 7 8 9 10 11 12
Curve for Baltimore, Cleveland, and Minneapolis. Before Junior High School, 1908-09 and 1913-14.
Curve for Same Cities After Junior High School, 1918-19, 1923-24, and 1928-29.
Curve for Cambridge, Paterson, and Wilmington. The 8-4 Plan, 1908-09 and 1913-14.
Curve for Same Cities on 8-4 Plan, 1918-19, 1923-24, and 1928-29.
Curve Based on Thorndike's Data for These Six Cities, 1900-04.

FIGURE II

CHANGES IN THE CURVE OF ELIMINATION IN CITIES WITH JUNIOR HIGH SCHOOLS AND CITIES WITH 8-4 PLAN

of those who started school in 1900-04 were eliminated before or during ninth grade, while only 39.6 percent were eliminated up to that point during the period from 1918-29. This process, since 1918, takes place rapidly after the ninth grade, whereas during 1900-04 comparatively few of those who started school left after reaching the ninth grade. Elimination has been postponed, on the average, two and a half to three years, the largest amount now occurring between the ninth and the tenth grades. Formerly, the greatest mortality occurred between the fifth and sixth, and between the sixth and seventh grades, respectively.

That these changes have taken place is evident, but did the junior high school help to cause them, or would they have occurred without it? What has the organization of the grades of this institution into a separate school contributed to this process of evolution? The data presented here indicate probable answers to these questions, but they cannot be taken as final because there is not sufficient evidence available to enable one to determine whether the facts presented here regarding sixteen cities are typical of the situation as a whole.

Ten of the sixteen cities had both the 8-4 plan and the junior high school in some form. Three cities had their schools organized entirely, or almost entirely, on the 6-3-3 plan, so that these three cities may be taken as typical of cities having the junior high school. Baltimore had the 6-3-3 plan exclusively since 1919. Cleveland has had the 6-3-3 plan since 1915-16 for all high schools except the commercial and technical ones, which were organized on the 6-2-4 plan. Minneapolis has had the junior high school for nearly all pupils since 1917-18. Three cities, Cambridge, Wilmington, and Paterson, had the 8-4 plan for all the years studied.

Figure II shows the changes which took place in these two groups of cities. One of the curves shows what the condition was for the years 1908-09 and 1913-14 in the cities which now have the junior high school. Another curve shows the trend of elimination in the same cities since the adoption of the junior high school plan, that is, for the years 1918-19, 1923-24, and 1928-29. The changes are almost identical with those which took place in the curve for the entire group of sixteen cities as shown in Figure I. In these cities, 30.2 percent more pupils who started school are held until ninth grade, but only 14.0 percent more are retained until the eleventh grade. This emphasizes again the increase in retention in the seventh, eighth, and ninth grades, and the more rapid elimination during the high school years.

The same chart shows the curves for these two periods of years for the cities still operating their schools on the 8-4 plan. The curve for these cities since 1918 turns upward from the eighth to the ninth grade. Although there is nothing in the data which indicates the reason for this feature, it is probably caused by the entrance of non-resident pupils sent into the cities by surrounding suburban districts which do not maintain high schools. In the larger cities this influx is assimilated, due to the larger number of resident pupils. It would be valuable to know what direction the curve would take if this influence were eliminated. Although there is slightly greater elimination between grades seven and eight and between grades nine and ten in these cities than in those which have the junior high school, the changes in the trend of the curve have been of the same general nature. The increase in the retaining power of the schools was approximately just as great in cities on the 8-4 plan as in the cities which have the junior high school. The postponement of elimination appears approximately to the same extent in cities having one type of organization as in the other, which indicates that, at least in these cities, retention of pupils depends more upon other factors than on peculiarities in the organization of the schools into administrative units.

The foregoing statements should not be interpreted as meaning that the junior high school has had no bearing on the problem of elimination, because only one of its characteristics, the separate organization of three school years, has been isolated for study. It is entirely possible that the more varied curricular offerings, provisions for individual differences, and other reforms brought about by the introduction of junior high schools have been potent factors in increasing the retaining power of the school. These features have been introduced into many systems still organized on the traditional 8-4 plan and have had the same effect there as in systems organized on the junior high school plan, thus accounting for the similarity of the changes in the curve for both types of systems in so far as they are due to factors within the school.

Figure III shows the curves of elimination based on the average percent of retention in the sixteen cities for the years 1900-04, and at five-year intervals since 1908-09. They show that there was a steady, but comparatively small rise and change in trend until 1918-19. For 1923-24, there was a spurt in the curve for the high school years. From 1923-24 to 1928-29, the largest increase during the grades occurred, while the increase for the high school years was approximately the same as during

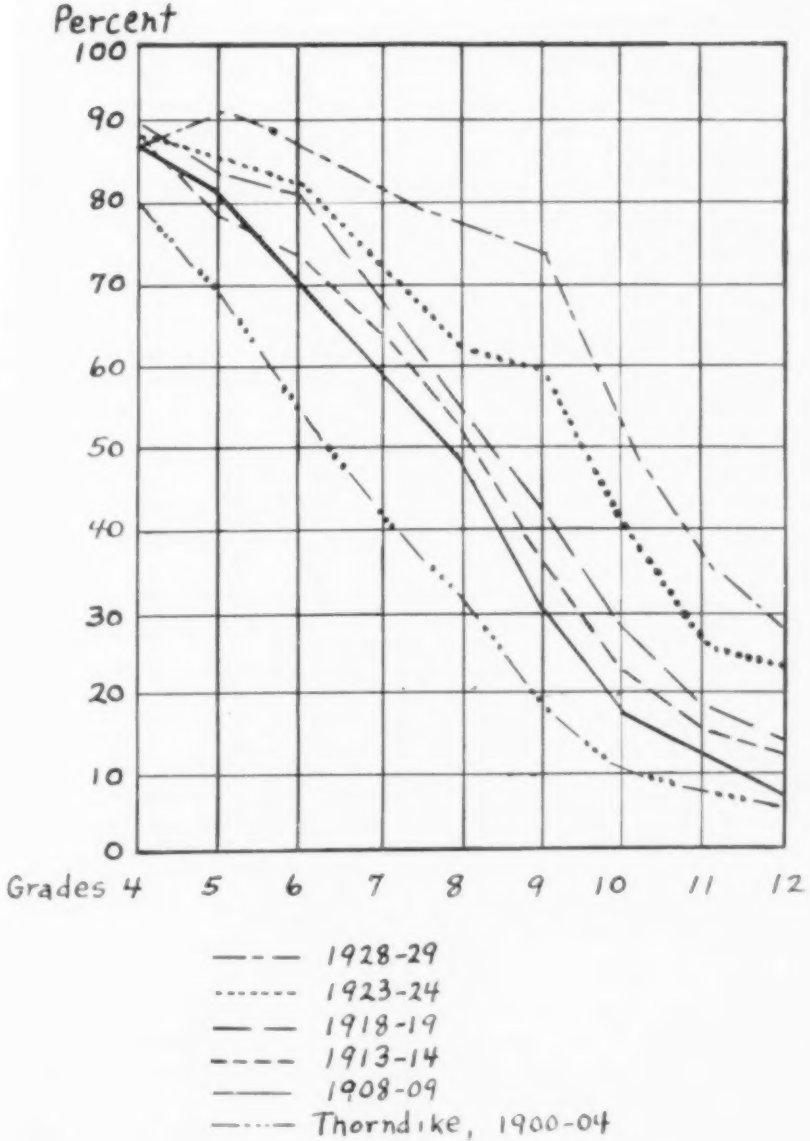

FIGURE III

CURVES OF ELIMINATION AT INTERVALS OF FIVE YEARS BASED ON THORNDIKE'S DATA AND AVERAGE ENROLLMENTS OF SIXTEEN CITIES

the preceding five-year period. The largest increase in retention during the junior high school years also took place during this period. Only two of the sixteen cities adopted the junior high school between 1923-24 and 1928-29, although new schools were established in other cities. Most of the cities had at least partially adopted the plan by 1918, so that the curve during the junior high school grades probably would have been more markedly affected by 1923-24 if the reorganization had been the most powerful influence in bringing about the change. However, the reorganization movement was continuous through the periods of greatest increase in retention.

The direction of the curve changed gradually from 1900 to 1918-19, after which the changes became more marked. The rise of the curve corresponds in point of time with the gradually changing economic conditions before 1918 and the more abrupt changes since then. The upward trend in the curve had already begun before the junior high school existed to any noticeable extent. This modification has been contemporaneous with social and economic changes in a manner which indicates a definite positive relationship, even to the extent of causation.

Figure IV shows elimination on the basis of the percent of pupils in a given grade not remaining until the next grade. The percentage of elimination between grades has decreased from ten to fifteen percent until the ninth grade when this difference becomes smaller. More pupils were eliminated on this basis between the tenth and eleventh grades during recent years than in the years 1900-04. These facts emphasize, again, the changes portrayed by the other charts. During recent years, more pupils remained in the elementary school as long as various circumstances would permit, and then were compelled to leave during the high-school years. This is shown in Figure IV by the shift of the hump to the right in the curve for the years 1908-29.

As a result of the facts presented in these data, the following general conclusions are considered valid and worthy of consideration:

1. There has been a significant postponement of elimination during recent years. Pupils were retained longer for the terms 1918-19, 1923-24, and 1928-29 by an average of two and a half to three years than they were in 1900. In 1928-29, they were retained approximately three and a half years longer.

2. Regardless of the factors which caused it, it is clear that the senior high school, rather than the junior high school, now has the largest problem of elimination to solve. If allowance were made for the death

of pupils, increase in population, interchange between cities, etc., it is safe to estimate that in 1928-29, eighty percent of the pupils who started school were still there in ninth grade, while only thirty percent were left at the beginning of the twelfth grade. Our efforts to reduce elimination must be concentrated on the tenth and eleventh grades where it is greatest.

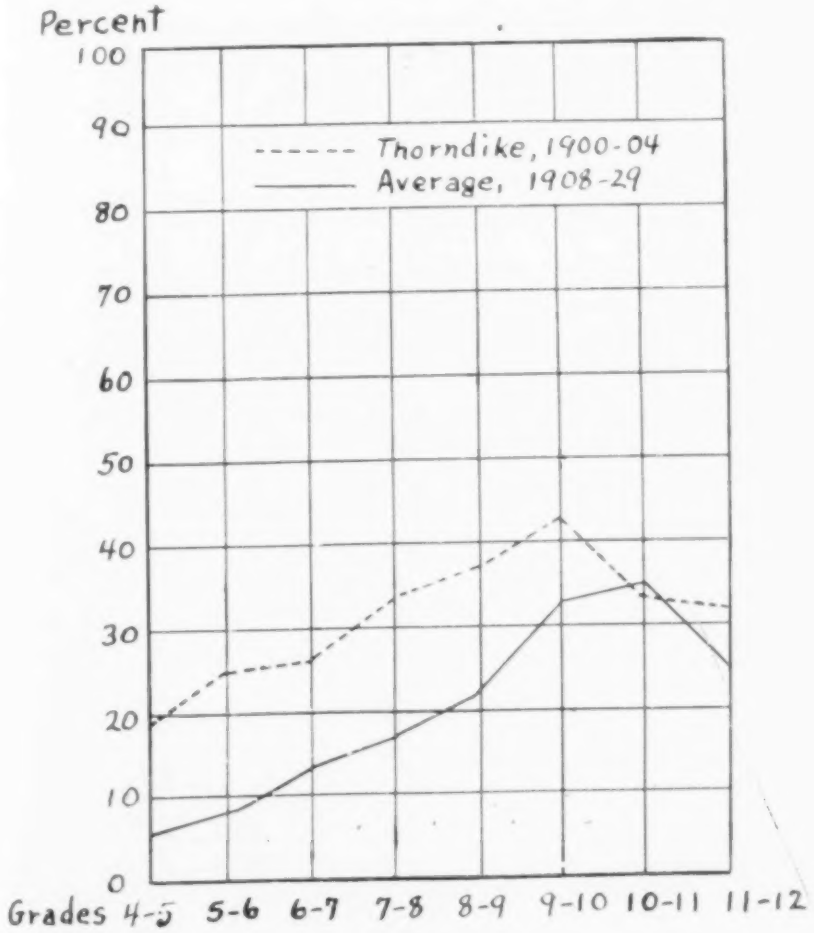

FIGURE IV

PERCENT OF ELIMINATION BETWEEN GRADES IN SIXTEEN CITIES

3. Cities which do not have the junior high school show practically the same postponement of elimination during identical periods of time as the cities which have the junior high school. If these data are characteristic of the situation as a whole, increased retention of pupils is not a peculiarity of school systems having the junior high-school organization.

INTELLIGENCE TESTING AT THE COLLEGE LEVEL

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FOR a number of years, various intelligence tests have been administered to seniors and graduate students who have enrolled in a course in

TABLE I

COEFFICIENTS OF CORRELATION, PROBABLE ERRORS OF THE COEFFICIENTS, NUMBER OF CASES INVOLVED IN EACH CORRELATION, MEANS, AND STANDARD DEVIATIONS FOR TESTS ADMINISTERED TO COLLEGE SENIORS AND GRADUATE STUDENTS ENROLLED IN COURSE IN MENTAL TESTING AT THE UNIVERSITY OF MINNESOTA

X Variable	S.D.x	Mx	Y Variable	S.D.y	My	N	r	P.E.r
Alpha	19.5	162.9	Analogies	13.2	66.3	651	.66	.01
Alpha	19.4	162.0	Inglis	18.8	118.0	250	.60	.03
Alpha	20.3	162.4	Myers*	15.5	80.9	835	.39	.02
Alpha	21.0	162.6	Miller B	13.0	95.2	491	.65	.02
Alpha	21.8	158.5	C A V D	28.1	94.1	62	.76	.03
Alpha	19.7	162.0	Mentimeter	12.0	137.5	423	.69	.02
Alpha	21.5	162.3	Miller A	15.0	95.1	334	.64	.02
Alpha	21.8	162.6	Otis	7.5	63.2	241	.72	.02
Alpha	18.2	168.6	Kuhlmann	12.4	147.1	47	.65	.05
Analogies	13.5	66.2	Inglis	18.8	118.1	249	.56	.03
Analogies	13.2	66.3	Myers*	15.4	81.0	651	.34	.02
Analogies	13.3	65.7	Miller B	12.7	93.7	309	.68	.02
Analogies	12.9	65.6	C A V D	28.1	94.1	62	.72	.04
Analogies	14.1	66.0	Mentimeter	12.2	137.4	420	.63	.02
Analogies	12.9	66.1	Miller A	14.7	93.7	151	.50	.04
Analogies	12.1	67.3	Otis	6.2	64.0	61	.60	.05
Analogies	11.4	67.4	Kuhlmann	12.5	147.2	46	.44	.08
Inglis	18.8	118.0	Myers*	14.6	78.9	250	.10	.04
Inglis	20.2	116.6	Miller B	12.5	94.3	131	.57	.04
Inglis	19.6	117.7	Mentimeter	11.3	138.8	158	.53	.04
Myers*	15.7	80.4	Miller B	13.0	95.2	493	.30	.03
Myers*	17.6	85.2	C A V D	28.1	94.1	62	.32	.07
Myers*	15.2	81.0	Mentimeter	12.1	137.5	423	.35	.03
Myers*	15.9	80.3	Miller A	15.0	95.1	336	.30	.03
Myers*	16.0	81.0	Otis	7.5	63.3	243	.37	.04
Myers*	15.8	83.3	Kuhlmann	12.4	147.1	47	.46	.08
Miller B	12.5	94.1	Mentimeter	12.9	137.9	195	.54	.03
Miller B	13.5	96.0	Miller A	15.7	94.6	264	.82	.01
Miller B	13.3	96.8	Otis	7.7	63.0	218	.64	.03
Miller B	9.5	94.4	Kuhlmann	12.4	147.1	47	.49	.07
C A V D	27.4	93.2	Mentimeter	12.7	134.7	61	.72	.04
Mentimeter	13.6	137.1	Miller A	16.1	91.9	92	.50	.05
Mentimeter	12.0	137.9	Kuhlmann	12.4	147.1	47	.46	.08
Miller A	14.3	96.5	Otis	7.5	63.2	241	.66	.03

* The Myers Mental Measure is a non-verbal test.

mental testing at the University of Minnesota. Because the facts derived from the tests may be of interest, especially for comparative purposes, to others working on similar problems, the following table showing the coefficients of correlation between tests, the probable errors of the coefficients, the number of cases involved in each correlation, and means and standard deviations for each test was prepared by the writer.

The tests included, with the actual working time allowed for each, are: (1) The Army Group Examination Alpha, Form 8 (22 minutes and 15 seconds); (2) The Miller Analogies Test for Graduate Students (40 minutes); (3) The Inglis Tests of English Vocabulary, Form A (no time limit, usually 30 minutes); (4) The Myers Mental Measure, Form 1 (12 minutes); (5) The Miller Mental Ability Test, Forms A and B (19 minutes each); (6) The I. E. R. Intelligence Scale C A V D, Levels M, N, O, P, and Q (no time limit, usually 180 minutes); (7) The Trabue Mentimeters (36 minutes); (8) The Otis Self-Administering Test of Mental Ability, Higher Examination, Form A (30 minutes); and (9) The Kuhlmann-Anderson Tests for Grade IX—Maturity (31 minutes).

Reported by an Observer

DISCOVERING THE POINT OF ATTACK ON LEARNING DIFFICULTY

ORGANIZING INSTRUCTION TO ADVANCE LEARNING

The work of every teacher, from time immemorial, has centered on the effort to connect a partial discovery of the pupils' need with the instruction offered. The teacher's work, however, has been directed not so much toward making specific and tested discoveries of points of difficulty and checking the relations of definite instructional steps with the discovered individual needs, as it has been toward following an instinctive sense of the difficulties and of the instructional possibilities.

Modern educational research is now concerned with these problems of the daily work of the teacher.

Research methods have been used to map the succeeding steps of difficulty in the presentation of subject matter and to determine the median advance of pupils through these difficulties. Advanced work has been done, also, in providing in some subjects a series of check tests and of observed examinations which locate the point at which new learning needs particular elements of instruction.

Research work of this kind is so closely related to the school and classroom situation that final validity for the results must depend upon trained coöperation with school workers. This trained ability to coöperate in school situations is required of the research workers, as well as of the school people. There are two opposite tendencies involved. The teacher tends to push on toward further learning, and the research worker tends to check the results of each learning step in relation to what is already learned. The teacher anticipates that new learning will enlighten what has been partially learned. The research worker seeks to locate the unlearned parts in order to perfect the point of attack on new learning.

The concrete effects of these two tendencies are that the new-type teacher tends to omit needed drill and that the newer research worker tends to fetter creative activity in learning by holding instruction to a definite point-by-point advance in which what is mastered enlightens what is to be learned. The research habit places little dependence upon ability to overleap any step.

The results of modern testing of attainment indicate that ability to use knowledge to acquire more knowledge is increased by broadening and organizing the details through instructive drill-training on the level of

present attainment. This is a value of training for certain definite uses and outcomes. Its validity does not contradict or interfere in any way with the validity of the values discovered for quite free creative activity. By such creative activity the mind grasps new interests, through the use of new knowledge, in new ways in advance of a perfecting of that new knowledge for use in mastering the organized subject of study. Training is not in itself opposed to originality and may be a valuable assistant to originality for its own creative purposes. It is in its own field of using the acquired and organized steps to give clear thinking for the next step of advance in subject matter that training stands vindicated.

No reason is apparent why the values for school work of original creative thinking cannot be validated. Experience needs to discover its possibilities, and close observation and experiment need to determine the part it plays for the full outcome of education for individuals who are to be common citizens in the real life of man.

The give and take of coöperation in this field has a value of its own, not only for the persons engaged, but also as a means by which the different roots of the problem are brought to light and its wide relations to real education discovered. The observer of the present movements is able to report only glimpses from different angles without attempting even an outline of connected meaning for the real situation.

The teacher of a second grade block-construction lesson leads the pupils to observe several number combinations in the work. They add the numbers to find how many blocks are needed to complete one part of the construction, and perhaps subtract to find what is left for another part. There is no difficulty so long as the combinations can be made mentally and given orally. A difficulty begins when the numbers need to be written and when part of the figures are of two or three place numbers and must be written in a column for addition.

The teacher is apt to direct the pupils how to write the figures in column order and when to use a zero figure. She holds attention to the construction work and omits the opportunity to connect the oral knowledge of the larger numbers with the simple plan for writing them given by our decimal system of figures. She undoubtedly expects that, after enough experiences, the children will know how to write numbers though they may not be conscious of why it is so simple.

For such a situation the research worker is apt to consider, first, what difficulties are ahead for the children as they advance to the use of other number processes. The decimal number system is the key for our simple solutions of these processes. Research investigations have shown that all zero combinations, whether in addition, subtraction, multiplication, or division, are the particular stumbling block for errors as far along as the sixth grade. Third and fourth grade children often make complete failures on these zero combinations. The teaching of the decimal form

of fractions is made much more difficult in the fifth and sixth grade since at this point the decimal system itself must be understood.

The research worker considers, in the second place, what organization of previous steps of learning point the way to learning the next step. Given the need to write two or three place numbers, and the problem of determining the position of the figures in each number for use in the number processes, just what knowledge of counting by the decimal system of figures is applied in order to understand the way these figures are to be written?

The research worker seeks for part of an answer to this question in a re-examination of the history of number counting with older means of keeping the record, and of the relation of some of these means for counting to the other number operations developed for the processes of computation. The simplicity of our decimal number counting system is found to be most apparent in just this relation to all number computations. So simple is it in this relation that, it seems, the teachers have overlooked the need to teach it at all. Children grasp the use of the arrangement at the start. They begin to fail only when unfamiliar situations require a clear understanding of the meaning and value in the use of the system. For instance, the child's interpretation of the use of the zero figure as a sign for quantity similar to any other figure, is one source of his difficulties. The research worker, therefore, seeks a means to show the use of the zero as the sign for indicating new values for the nine digits of the system as these are repeated to express by the same digits quantities ten times larger, or a hundred times larger, and so on indefinitely.

In the earlier days of our public schools, teachers used the ancient abacus, or counting frame, to develop this idea. But this frame was not as simple as our number system. Though it could keep the tally for counting, it suggested no symbol to be used in writing numbers and to be used in marking the places in a number having many figures, where digits were not required. Little use seems to have been made of other devices and teachers have been left to their own ingenuity so far as the textbooks are concerned.

The following is suggested for experimental development through the coöperation of teachers and research workers. It indicates in a simple situation the need for coöperative study of such problems.

In preparing for a lesson on writing numbers having two or three place figures, use the following order for counting with a table put on the blackboard. Extend the number of columns used with classes in second or third grade. To count the number ten we use the digit figure $9 + 1$ and write ten as a two-place figure in which zero follows the figure 1 and the written form, 10, is the number ten.

To count on from 10 we use the nine digits but before each digit we place a *1*, as *11*, *12*, *13*, and so on.

	9 + 1 = 10	19 + 1 = 20	99 + 1 = 100	999 + 1 = 1000
1	10 + 1 = 11	20 + 1 = 21	100 + 1 = 101	1000 + 1 = 1001
2	10 + 2 = 12	20 + 2 = 22	100 + 2 = 102	1000 + 2 = 1002
3	10 + 3 = 13	20 + 3 = 23	100 + 3 = 103	1000 + 3 = 1003
etc.				
—				
—				
9				

When the process of multiplication is undertaken, use a somewhat similar table arranged in horizontal rows to show the relation of counting by twos, threes, and so on, to the original line of counting by ones. This table gives, by the times a number is counted, the multiplication table of that number. The multiple is shown in the 1's line, as 2×2 is under 4; 2×3 is under 6; 4×3 is under 12, and so on.

1's	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2's		1st		2nd		3rd		4th		5th		6th		7th		8th		9th
3's			1st			2nd			3rd			4th			5th			6th
4's				1st				2nd				3rd				4th		
5's					1st					2nd					3rd			
6's						1st						2nd						3rd
etc.						etc.						etc.						

This diagram shows several other things such as the number of factors of 4 or 6, or 12. The numbers 7, 11, 13, 17, show no factors. It has been called a Roman multiplication chart since it would show these facts for a letter system of numerals. The chart has no value for children as an historical instrument for number processes, but may show certain relations, which are already learned, and in an objective way help toward ability to use these facts.

The great danger in putting such devices into the textbooks is that pupils, if not teachers, may miss the point in their use. In using them for illustrative purposes the emphasis should be on the idea of finding an organization of previous learning, helpful in meeting the requirements of new learning. Such devices are not for new learning. It is the organization given to old learning worked out, if possible, by the children themselves guided by the teacher.

G. A. B.

RESEARCH ABSTRACTS and BIBLIOGRAPHIES

Address all communications relative to research abstracts and bibliographies to A. S. Barr, University of Wisconsin, Madison, Wisconsin.

BULLETINS

ALTHAUS, C. B., AND TWENTE, J. W. *The Organization and Financing of Rural High Schools in Kansas*, Bulletin of the University of Kansas, XXXIII, No. 13 (Lawrence, Kansas: University Extension Division, University of Kansas, 1932), 47 pp.

This bulletin presents a discussion of the legal basis and organization of rural high schools in Kansas, financing of rural high schools in Kansas, and suggestions for their reorganization.

BEAUCHAMP, WILBUR L. *Instruction in Science*, Bulletin, 1932, No. 17, National Survey of Secondary Education, Monograph No. 22 (Washington: United States Government Printing Office, 1933), vi + 63 pp.

This report is one of several reports of the National Survey of Secondary Education. It contains data on the preparation of courses of study, educational objectives, organization of courses in science, selection of subject matter, suggestions on instructional technique, and types of problems in classroom teaching.

BOYER, PHILIP A. *Individualization of Instruction*, Bulletin No. 272, Division of Educational Research and Results (Philadelphia, Pennsylvania: The Board of Public Education, 1933), 36 pp.

The study herein reported was initiated by a committee of high-school principals studying individualization of instruction, and was carried out by sub-committees of department heads in the several subjects' fields, each sub-committee observing individualization practices within its own field.

BOYER, PHILIP A. *Report of the Division of Educational Research and Results:* for the Year Ended June 30, 1932, School District of Philadelphia (Philadelphia, Pennsylvania: Board of Public Education, 1932), 81 pp.

The author presents a summary of research conducted by the Division of Educational Research in the Philadelphia Public schools for the year ending June 30, 1932, relating to various administrative and instructional activities.

BRYAN, MARY DE GARMO, AND HANDY, ETTA H. *Furnishings and Equipment for Residence Halls*, (New York: Bureau of Publications, Teachers College, Columbia University, 1933), vii + 95 pp.

Most colleges find it necessary to provide rooms or room and board for at least part of their students. The planning and furnishing of these halls is made the subject of a study reported in this bulletin. This bulletin contains a discussion of the interior finish and fixtures, furnishings and equipment, food service furnishings and equipment, furnishings for living and social rooms, laun-

dry equipment, and service spaces. Bibliography.

Bulletin of the International Bureau of Education, No. 25 (Geneva: International Bureau of Education, 1932), 48 pp.

Contains information upon children's literature and international good-will, the education budget of certain states, school legislation, etc. Bibliography.

CAMPBELL, DOAK S. *Principals of the Accredited High Schools of the Southern Association of Colleges and Secondary Schools;* A Report to the Commission on Secondary Schools, Division of Surveys and Field Studies (Nashville, Tennessee: George Peabody College, 1932), 56 pp.

This bulletin presents a study of the qualifications of the principals of accredited high schools of the Southern Association: their experience, tenure, salary, training, duties, etc.

CASWELL, HOLLIS L. *Non-Promotion in Elementary Schools*, Field Studies No. 4, Division of Surveys and Field Studies (Nashville, Tennessee: George Peabody College, 1933), x + 99 pp.

This bulletin presents the relation of non-promotion in elementary schools to the difficulty of instruction with a suggestion for procedure. The bulletin contains a statement of the purpose of the study, status of non-promotion in elementary schools, theories of pupil progress, relation of non-promotion to difficulty of instruction, influence of non-promotion on pupils, and solving the problem in individual schools. Bibliography.

CHASE, VERNON E. *A Survey and Building Program*. Fordson School District (Dearborn, Michigan: Bureau of Research and Statistics, Fordson Public Schools, 1931), 72 pp.

The author presents an analysis of school building requirements: building policies of the board of education, factors determining school building, population survey of Fordson school district, density and trend of population growth, etc.; the present school plant: volume and area, factors determining school building capacity and utilization, measuring building utilization, etc.; and future school building program for the Fordson school district.

DOLL, EDGAR A. *The Problem of the Feeble-Minded in New Jersey:* The Relation of the Public Schools to the Public Institutions, Publication 23 (Trenton, New Jersey: Department of Institutions and Agencies, 1933), 31 pp.

This bulletin presents a discussion of the relation of the public schools to the public institutions for the feeble-minded in New Jersey. It contains a statement of the problem, the feeble-minded in the public schools, and a coördinated program of activities.

HURD, ARCHER WILLIS. *Coöperative Experimentation in Materials and Methods in Secondary School Physics* (New York: Bureau of Publications, Teachers College, Columbia University, 1933), ix + 60 pp.

The author presents in this bulletin an outline of a series of experiments relating to the improvement of instruction in the subject of physics. The bulletin contains a summary of former investigations, plans for the experiment of 1931-32, experimental data from coöperating

schools, data from other schools, and comments and summary.

KELLY, FRED J., AND MCNEELY, JOHN H. *The State and Higher Education:* Phases of Their Relationship (New York: The Carnegie Foundation for the Advancement of Teaching, 1933), xii + 282 pp.

This bulletin presents three studies of control in the field of service of institutions of higher learning in certain selected states of United States, discussing control and curricular offerings, the trend toward unified control, and significant variations by states.

MELCHER, GEORGE. *The Junior College of Kansas City, Missouri,* Kansas City School Service Bulletin, V, No. 2 (Kansas City, Missouri: Department of Education of Kansas City Public Schools, 1933), 26 pp.

This bulletin supplies a description of the faculty, the historical background of the Junior College in Kansas City, the objectives, curricular activities, student body, etc.

MITCHELL, WESLEY C., AND OTHERS. *The President's Research Committee on Social Trends:* Review of Findings (York, Pennsylvania: The Maple Press Company, 1933), LXXV pp.

This bulletin contains a review of findings of the President's Research Committee on Social Trends, published in two volumes by the McGraw-Hill Book Company.

MORGAN, WALTER E. *Statistics of California Junior Colleges:* for the School Year Ending June 30, 1932. Department of Education Bulletin, No. 1 (Sacramento, California: The State Department of Education, 1932), x + 36 pp.

This bulletin presents for the fifth consecutive school year summary data relative to the district junior colleges of California and for the third consecutive year available basic data relative to the junior colleges maintained by high-school districts.

NIFENECKER, EUGENE A. *New York Spelling Tests—Series PW:* Based on the Lists of Prescribed Words in the New York City Course of Study in Spelling, Grades 4B-8B, Publication No. 26, Bureau of Reference, Research and Statistics (New York: Board of Education of the City of New York, 1932), 16 pp.

This bulletin contains a discussion of the construction of the New York Spelling Tests, directions for conducting the tests, directions for scoring and recording results, standardization and norms, validity and reliability, and analysis and use of results.

NIFENECKER, EUGENE A. *New York Survey Tests in Arithmetic—Manual of Directions:* Fundamental Operations—Integers Advanced Examination, Grades 4B-8B, Publication No. 25, Bureau of Reference, Research and Statistics (New York: Board of Education of the City of New York, 1932), 16 pp.

This bulletin contains data upon the construction of the New York Survey Tests, directions for administering, directions for scoring and recording, standardization and norms, validity and reliability, and uses of the tests.

SHORT, JESSIE M., AND HARRINGTON, NORMAN KARL. *Women's Wages:*

Compared with Living Costs and General Community Standards, 1914-1932. Reed College Bulletin, XII, No. 1 (Portland, Oregon: Reed College, 1933), 15 pp.

This bulletin presents the results of a study based upon the statistics gathered by the Women's Bureau of the United States Department of Labor, supplemented by data on budgets of 629 grade teachers in the Portland schools.

SMITH, RANDOLPH B. *The Development of an Inventory for the Measurement of Inferiority Feelings at the High-School Level*, Archives of Psychology, No. 144 (New York: Columbia University, 1932), 118 pp.

This bulletin presents a psychological study of the inferiority complex at the high-school level. It contains a statement of the problem, previous research bearing on the problem, the development and use of the forms employed in the investigation, their validity and so forth, and the relation of inferiority feelings to such factors as age, sex, socio-economic status, intelligence, and school achievement. Bibliography.

STENQUIST, JOHN L., AND OTHERS. "Educational Tests and Their Uses, *Review of Educational Research*, III (February, 1933), pp. 1-80.

Contains a summary of researches relating to certain basic considerations in educational measurements, a selection of test items, recent development in statistical procedures, recent development in testing for guidance, and recent development in the uses of tests. Bibliography.

WRIGHT, EDITH A., AND GRAY, RUTH A. *Bibliography of Research Studies in Education, 1930-1931*, Bulletin No. 16 (Washington: United States Government Printing Office, 1932), xviii + 459 pp.

An annotated bibliography of research studies relating to all phases of education during the year of 1930-1931.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

BACHMAN, FRANK P. "Present Certification Requirements and Implications for Teachers Colleges," *Educational Administration and Supervision*, XIX (February, 1933), pp. 97-118.

The author presents an analysis of the certification requirements of the several states.

BOWYER, VERNON. "Relation of Public-School Support to Subsequent per Capita Wealth of States. II," *Elementary School Journal*, XXXIII (February, 1933), pp. 417-426.

This is the second of two articles discussing the relation between the financial support of public schools and subsequent changes in per capita wealth in which the author shows by means of partial correlations that the obtained correlation is not due to other factors.

CARROTHERS, GEORGE E. "High Schools of Michigan in the Depression," *School Review*, XLI (March, 1933), pp. 175-181.

The author summarizes the situation in Michigan Schools with reference to number of new teachers employed, the number trained, salaries, and changes in the curriculum.

EDWARDS, NEWTON. "The Law Governing the Dismissal of Teachers, III," *Elementary School Journal*, XXXIII (February, 1933), pp. 434-446.

This is the third of a series of articles summarizing the law governing the dismissal of teachers with reference to school practices.

GLESSNER, HARRY H., AND GRAHAM, LEO J. "A Study of Retardation and Failure in a Junior High School," *Educational Administration and Supervision*, XIX (February, 1933), pp. 81-90.

The authors present an analysis of failures in the Edison Junior High School, Berkeley, California.

HERRON, ALLEN M. "An Evaluation of the Available Training Programs for General Elementary Supervisors," *Educational Administration and Supervision*, XIX (February, 1933), pp. 124-128.

From an analysis of the catalogues of two hundred sixty-six institutions the author presents a study of the course offerings in the field of supervision.

RUTLEDGE, SAMUEL A., AND BRISCOE, ALONZO O. "Guiding Principles for the Administration of Extra-curricular Activities in the Teachers College," *Educational Administration and Supervision*, XIX (February, 1933), pp. 129-140.

Based upon an analysis of the literature on extra-curricular activities and the judgment of forty-five presidents of teachers colleges the authors present a series of principles for the administration of extra-curricular activities in teachers colleges.

EXPERIMENTAL STUDIES OF LEARNING AND TEACHING

EINBECKER, WILLIAM FRANCIS "Comparison of Verbal Accompaniments to Films," *School Review*, XLI (March, 1933), pp. 185-192.

From a study of the performance of paired groups in the ninth, eleventh, and twelfth grades of the Deerfield-Shields Township High School, Highland Park, Illinois, the author concludes that talking pictures have little advantage, if any, over the ordinary silent motion picture accompanied by well planned comments by the teacher.

GOLDTHWAIT, C. "Relation of Eye-Movements to Visual Imagery," *American Journal of Psychology*, XLV (January, 1933), pp. 106-110.

The author presents the results from a series of three experiments from which he concludes that there is no characteristic relation between the type of visual image and the amount of accompanying eye-movement.

GROSSNICKLE, FOSTER E. "Cues in Division Problems Given in Nine Representative Textbooks in Arithmetic," *Elementary School Journal*, XXXIII (February, 1933), pp. 452-461.

The author presents an analysis of the cues found in problems involving division in nine textbooks in arithmetic for grades 3 to 6, inclusive. A cue is a certain phrasing, suggesting to the pupil addition, subtraction, multiplication, and division. The author found a wide variation in the practices of these books.

WARNER, PAUL C., AND GUILER, WALTER S. "Individual vs. Group Instruction in Grammatical Usage," *Journal of Educational Psychology*, XXIV (February, 1933), pp. 140-151.

An experimental study of individual and group instruction in grammatical usage in which the authors find the individual method the superior.

CURRICULUM RESEARCH

DANFORTH, MARIE LUSK. "Purposes in the Selection and Arrangement of Material in Supplementary Readers," *Elementary School Journal*, XXXIII (February, 1933), pp. 427-433.

From a study of the prefaces of school readers designed for supplementary reading, the author finds two main trends in the selection of material: (1) a consideration of children's interests; and (2) a consideration of the value of the material to the children.

SHERMAN, J. LEONARD. "The Curriculum Offerings in Certain Types of Private Secondary Schools," *School Review*, XLI (March, 1933), pp. 206-212.

From a study of the catalogues of one hundred and twelve private schools, military schools, non-military schools, denominational schools, non-denominational schools, and co-educational schools the author concludes that the curriculum of these schools is predominantly composed of academic subjects of the college preparatory type.

MEASUREMENTS, STATISTICS AND METHODOLOGY OF SCIENTIFIC RESEARCH

BROWN, RALPH R. "The Time Interval between Test and Re-Test in Its Relation to the Constancy of the Intelligence Quotient," *Journal of Educational Psychology*, XXIV (February, 1933), pp. 81-96.

The data for this study were the Stanford-Binet test results of one hundred twenty-four "problem" children examined two or more times at the Chicago Institute of Juvenile Research. The author finds that a time interval of from five to nine years between tests increases the variability of the I.Q. rating to almost twice that when the time interval is less than two years.

DICKEY, JOHN W. "Combining Zero-order Correlation Coefficients," *Journal of Educational Psychology*, XXIV (February, 1933), pp. 123-128.

The author supplies a method of combining any number of zero-order coefficients of correlation into a single r.

EURICH, ALVIN C. "The Reliability and Validity of Photographic Eye-Movement Records," *Journal of Educational Psychology*, XXIV (February, 1933), pp. 118-122.

The author finds the reliability of the various measures of eye-movements to be fairly high, the order of reliability being: (1) the duration of fixational pauses or perception time; (2) the number of fixational pauses; (3) the number of regressions, and (4) the duration of fixations following regressive movements.

REYMERT, M. L., AND HARTMAN, M. L. "A Qualitative and Quantitative Analysis of a Mental Test," *American Journal of Psychology*, XLV (January, 1933), pp. 87-105.

This study presents an intensive exploration of the Knox Cube Test, made to emphasize the importance of the qualitative aspects of test results as against the ordinarily stressed quantitative aspects.

TYLER, RALPH W. "Assumptions Involved in Achievement-Test Construction," *Educational Research Bulletin*, XII (February 8, 1933), pp. 29-36.

Recognizing the harm done to the scientific study of education through the absence of intelligent understanding of the philosophy and methods of educational testing, the author presents a

study of the assumption involved in achievement test construction.

WEIDEMANN, C. C., AND LYNDALL, FISHER NEWENS. "An Argument for Centile Ranks," *Journal of Educational Psychology*, XXIV (February, 1933), pp. 97-106.

The authors give data showing the relation of directions preceding examinations to test scores.

MISCELLANEOUS

CHAMBERS, M. M. "The Tort Liability of Colleges and Universities," *Educational Law and Administration*, II (January, 1933), pp. 4-13.

The author discusses exemptions on grounds of public policy, the Texas rule, where the college is liable, injuries to property, etc. The study was made possible by a special grant from the Carnegie Corporation of New York.

NEW TESTS

SYMONDS, PERCIVAL M., AND BLOCK, VIRGINIA LEE. *Student Questionnaire*. New York: Bureau of Publications, Teachers College, Columbia University, 1932.

The authors present a questionnaire relating to the conditions at home and at school. First, it relates to the curriculum; second, it relates to the administration; third, it relates to the teachers; fourth, it relates to other pupils; and fifth, it relates to home and family.

GATES, ARTHUR I., AND PEARDON, CELESTE COMEGYS. *Practice Exercises in Reading: Types A, B, C, and D*. New York: Bureau of Publications, Teachers College, Columbia University, 1933.

The authors present practice exercises in reading for grades 3, 4, 5, and 6 for four types of reading material: Type A, reading to appreciate the general significance of a selection; Type B, reading to predict the outcome of given events; Type C, reading to understand precise directions; and Type D, reading to note details.

DOWNING, CHESTER MILLER, AND THOMAS, CHARLES SWAIN. *A Lower Extension of the Inglis Tests of English Vocabulary*. New York: Ginn and Company, 1932.

There are two forms of this test: Form Y and Form X, with norms for grades 6, 7, 8, 9, and 10.

RESEARCH NEWS and COMMUNICATIONS

Address all research news and communications to Carter V. Good, Teachers College, University of Cincinnati, Cincinnati, Ohio.

Two 1933 Yearbooks.—The current yearbook of the National Society for the Study of Education is entitled, *The Teaching of Geography.* Geography is discussed in terms of: its development and general contribution to life, the science and technique of teaching, investigations of teaching method, and the curriculum. The chairman of the committee which prepared the yearbook is A. E. Parkins of George Peabody College for Teachers. The publisher is the Public School Publishing Company of Bloomington, Illinois.

The 1933 yearbook of the National Society of College Teachers of Education is entitled, *The Educational Frontier.* The point of view from which the yearbook was prepared is expressed in the Foreword as follows:

"This book results from the union of two lines of events. On the one hand, the authors in relative independence had individually concluded that the social-economic situation now makes the outstanding demand on education. On the other, the National Society of College Teachers of Education requested of them a yearbook in the philosophy of education.

"The initial decision was to deal directly with the social-economic situation and its interaction with education, and in this way to show the philosophy of education properly at work. It was further agreed to present as far as possible one unified treatment rather than a collection of separately written essays. What here appears is the result of these decisions. Extended conferences have sought through earnest discussion to effect a single outlook and a consistent argument. The actual writing, however, has perforce been apportioned, with no effort to "iron out" individuality. The observant eye will accordingly discern amid obvious differences of style some remaining differences of emphasis."

Education is discussed in terms of: present-day confusion in education, the social-economic situation, the new conception of the profession, the new adult education, the task and administration of the school, professional education from the social point of view, and the underlying philosophy. The members of the yearbook committee are: W. H. Kilpatrick (editor), John Dewey, R. B. Raup, and J. L. Childs of Columbia University; B. H. Bode, and H. G. Hullfish of Ohio State University; and V. T. Thayer of the Ethical Culture Schools. The publisher is the University of Chicago Press.

Research Studies in Education, 1930-1931.—Bulletin No. 16, 1932, of the United States Office of Education is its fifth annual compilation of studies in education. Of the 4365 items listed 2877 are graduate theses, 387 Doctors' and 2490 Masters' titles. The distribution of research in the various subdivisions of education from September, 1930, to August, 1931, is as follows:

TABLE I

NUMBER OF RESEARCH STUDIES IN THE VARIOUS FIELDS OF EDUCATION, 1930-31

Subject	Doctors'	Masters'	Miscellaneous	Total	Approximate Percent
Educational history and biography	20	71	13	104	2.38
Current educational conditions—United States	3	23	60	86	1.98
Current educational conditions—Foreign and international	26	53	16	95	2.18
Educational theory, special methods	10	58	35	103	2.36
Educational psychology, child study	29	46	39	114	2.61
Testing and research	20	57	147	224	5.13
Special subjects of curriculum	73	710	273	1056	24.20
Elementary education, including preschool	3	30	20	53	1.22
Secondary education	12	95	70	177	4.06
Teacher training and status	54	175	124	353	8.09
Higher education	23	48	56	127	2.91
School administration	20	210	123	353	8.09
School management	8	128	146	282	6.46
School buildings	4	29	31	64	1.47
School health and physical education	9	134	68	211	4.84
Play, social aspects, child welfare	8	57	16	81	1.86
Moral and religious education	18	76	24	118	2.70
Guidance	6	72	41	119	2.73
Vocational training, including agricultural education, home economics, etc.	15	221	87	323	7.40
Education of racial groups	7	49	10	66	1.51
Exceptional children	9	63	39	111	2.54
Education extension and libraries	8	76	48	132	3.03
Studies received too late for inclusion in classified list	2	9	2	13	25
Total	387	2490	1488	4365	100.00

Immediate Results of the Chicago School Survey.—Superintendent Bogan of Chicago, who prepared the material for this statement, reports that the results of the Chicago survey to date deal primarily with financial economies, since the study was conducted at a time when financial conditions made necessary the most stringent economies. In spite of a growing school membership, the 1932 budget was cut more than $11,000,000 below that of the previous year. It is stated that the eliminations, for the most part, were made in response to recommendations of the survey staff. For example, in preparing the 1932 budget, the superintendent recommended a consolidation of twenty-two bureaus into five, at a saving of $130,000, following substantially the survey findings. In the summer of 1932, immediately after receiving the survey report, the board of education made further curtailments of more than $13,000,000 in accordance with the recommendations included. The largest item in this reduction was one of

$11,700,000 for new buildings and sites. Ninety-five old buildings were reinspected by fire-prevention experts, and numerous administrative changes for the safety of the children resulted. As a temporary measure, enforced by the suspension of building operations, a complete re-survey of vacant rooms has been made, with the result that junior and senior high school seat shortage has been partially relieved by the opening of branches in elementary schools with vacant rooms. Household arts and manual training classes have been discontinued in six-grade schools, and this work has been departmentalized in eight-grade schools, thus eliminating more than three hundred teachers. All of these changes are said to be in conformity with the survey recommendations.

The Chicago board of education for generations has transacted its business through numerous committees, such as finance, buildings and grounds, school administration, purchases and supplies, and the like. The report recommended the abolishment of all standing committees, which has been done.

As is to be expected, most of the first measures adopted as a result of the survey have been those by which immediate economies could be effected. Since the publication of the report in the autumn of 1932, the educational findings have been the object of careful study by teachers and school officers, with the thought that it is a sort of "five-year plan," which will give direction and unity to the educational forces of Chicago in their efforts to improve the school system.

(An earlier report of the survey appeared in the March, 1933, number of this department. Editorials in the February, 1933, *Phi Delta Kappan* and *Elementary School Journal* and in the March, 1933, *School Review* seriously question both the necessity for, and the desirability of, many of the economies effected in Chicago.)

Philadelphia Division of Research.—The report of the Philadelphia Division of Educational Research and Results for the year ended June 30, 1932, contains an interesting account of the varied activities of the Division. Under the heading of administrative research are described studies of ability grouping, slow progress classes, mental ability, pupil performance, promotion, individualization of instruction, and articulation. Instructional research has centered on the development and use of tests and remedial drill materials in the various elementary and secondary school subjects. The staff of the Division includes a director (Philip A. Boyer), five professional assistants, and eight clerical assistants.

Proceedings of the New York University Conference.—The conference of universities on the theme of "The Obligation of Universities to the Social Order" was held in New York last November, under the auspices of New York University, in commemoration of the completion of one hundred years of instruction. The addresses and discussions of this Conference have been compiled in a volume with a similar title. The contributors include many of the most eminent university administrators and students of educational problems in this country and Great Britain. The ideas presented represent probably the most authoritative opinions on the subject now available in print. The university is discussed in terms of its aims and province, economic changes, governmental changes, spiritual values, and the changing world.

National Occupational Conference Organized.—The American Association for Adult Education, through its Director,

Morse A. Cartwright, announces the formation of the National Occupational Conference, an organization which will act as a clearing house for information in the field of occupational education and adjustment, functioning under the direction of the Association. The Conference plans to make occupational information based on studies and research more generally available than at present, both to educators and to young people and their parents, to prevent duplication of effort in occupational study and research, and to maintain high standards of performance in making occupational studies. An appropriation of $33,000 for the maintenance of the organization for the remainder of the fiscal year to October 1 has been made by the Carnegie Corporation of New York.

Franklin J. Keller, Principal of the East Side Continuation School and Director of the Vocational Survey Commission of New York City, will be Director of Studies of the Conference, and Robert Hoppock, formerly Field Secretary of the National Vocational Guidance Association will assist him. Headquarters offices have been opened at 522 Fifth Avenue, New York.

It is expected that the Conference will coöperate with such organizations as the United States Office of Education, the Federal Board for Vocational Education, the American Vocational Association, the National Vocational Guidance Association, the National Education Association, the American Management Association, and others.

There have been appointed an Executive Committee, a Technical Committee, and an Advisory Committee, composed of persons representing educational institutions and organizations, parent education, vocational education, school administration, labor, industry, engineering, economics, and Negroes.

Coincidental with the formation of the Conference, the American Council on Education has appointed a Committee on Educational Training and Adaptation, under the direction of Edward C. Elliott. This committee is independent of, but will coöperate with the Conference. Its chief interest is in evolving a program for a long-time study and planning of occupational education. The Society for the Promotion of Engineering Education has appointed a committee with Robert H. Spahr, of the General Motors Institute of Technology, as chairman, to follow up a study in technical education made by Mr. Spahr. Many other organizations are at present engaged in occupational study and research, and one objective of the Conference, as stated above, is the dissemination of information about such work under way.

Association for Childhood Education. More than one thousand teachers from all parts of the United States are expected to attend the annual convention of the Association for Childhood Education which will meet in Denver, June 27 to July 1, 1933. The Association is an outgrowth of the International Kindergarten Union and the National Council of Primary Education. The International Kindergarten Union met in Denver thirty-seven years ago. The 1933 meeting marks the first return of the Association to Denver since 1895. The 1932 convention was held in Washington, D. C. Helen R. Gumlick, supervisor of kindergarten and primary grades, Denver Public Schools, is general chairman of the convention, and Edwina Fallis, kindergarten teacher at Lincoln School, is local chairman.

The Junior High School in Indianapolis.—The inauguration of the junior high school in Indianapolis has been under way for nearly two years. It is being accomplished by a method rather unusual in comparison with the customary procedure. In October, 1930, Superintendent Paul C. Stetson made the recommendation to the Board of School Commissioners, "that some type of organization and method of procedure be formulated which will allow us to gain the benefits from a junior high school type of organization without disturbing any more than is necessary our present plan of having relatively small neighborhood schools." Heretofore, most of the cities have introduced the junior high school by developing successively, district by district, a junior high school unit in a separate building and continuing such a process until the entire system has been completely transformed. It is well known that in a city of any size, such a process covers a number of years, making it necessary meanwhile that a dual system of organization in the intermediate grades be maintained with two groups of teachers, two courses of study, different textbooks, and promotion from building to building at different grade levels.

The Indianapolis plan calls for the reorganization of the seventh, eighth, and ninth grades into a junior high school division of the city system, involving simultaneously a gradual transformation of each of the units toward the goal of a standard, complete, and well organized junior high school. It will require at least two years more to make the change complete. Meanwhile, all the children will secure the benefits of the improvements as they are brought to light and incorporated in the system. Already departmentalization has become a fact; an extended period has been established; teachers with Masters' degrees and Bachelors' degrees, and others who have gained the new point of view in summer courses, extension work, etc., have been chosen to constitute the faculty of the junior high school division. A half year was given to seminars representing each of the fields in the program of studies in order that all the teachers might better comprehend the reorganization contemplated. This contributed much to the undertaking and made possible the change with minimum shifts in the teaching force.

An enriched course of study was introduced in September, 1932, in Grades 7B and 8B. The plan was extended to 7A and 8A at the mid-year and during the year, 1933-34, will be adopted in the ninth grade. The activity period takes on junior high school formation at the mid-year. A definite program of personal and educational guidance is now in formation. Provisions for different levels of abilities, with remedial offerings for those deficient, are receiving major consideration. It is the plan for each of these distinguishing characteristics of the junior high school to be developed as rapidly as possible and incorporated as soon as each is completed.

In order to carry out Superintendent Stetson's recommendation of preserving the relatively small neighborhood schools, thus avoiding transportation hazards and preserving the unity which always characterizes neighborhood groupings, it is the proposed plan to develop the seventh, eighth, and ninth grades to form the junior high school division, but the seventh and eighth years of the junior high school will be retained in neighborhood buildings while the ninth year will be conducted as a subunit of the senior high school. The assumption is that the seventh and eighth grades in smaller forma-

tions may do the exploratory and enriching work of the junior high school in an acceptable manner, while the ninth year as the subunit of the senior high school, due to the large size of this group and the facilities available, will be better equipped to do the try-out and guidance work of the junior high school than it would otherwise be able to do. Out of the senior high school faculty, therefore, twenty-five to thirty percent of the teachers best prepared to carry on the upper year of the junior high school would be selected to perform the ninth year task.

Since guidance is considered the paramount responsibility in the year preceding the senior high school, there is the hope that these selected teachers from the senior high school will be able to establish the carry-over from the junior high school to the senior high school in at least as effective a manner as they would be able to do if dealing with the same children in a building isolated entirely from the senior high school as an institution.

It will be interesting to watch the Indianapolis experiment, not only because it brings the benefits of the junior high school to all the children in a shorter time, but because it presents many professional features worth careful evaluation. An administrative bulletin giving the initial approach to this undertaking already has been issued; in the spring a second volume is contemplated which will contain courses of study and a description of other advances now under way.

Massachusetts Studies.—Previous to 1930 there were very few teachers employed in Massachusetts for the instruction of crippled children in their homes. In 1930 a bill was enacted by the Legislature which provides that every town and city shall annually ascertain the number of children who are so physically handicapped that they cannot attend the public schools. The law requires a report to the Department of Public Welfare and the Department of Education. Such a report gives the name, age, handicap, and mental condition of each child. The state supervisor of physically-handicapped children, or an assistant, visits each case reported and determines the following facts: (1) Should the child be sent to the Massachusetts School for Crippled Children or to some other institution? (2) Is the child's condition such that with special attention he can attend the public day school? (3) Is his physical and mental condition such that he can profit by instruction in his home? After the report of the visitor is received, the Departments either approve or disapprove of home instruction for each case.

The law provides that, if there are fewer than five such children in a town or city, the school committee may provide this instruction in the child's home. If there are five or more such children, the town or city must provide such instruction. The action of towns and cities has been most gratifying. Many towns having fewer than five crippled children have voluntarily provided home teachers. During the past year forty-one towns and cities have offered instruction to these children. Forty full-time and fifty-one part-time teachers are now employed. The Department requires that a teacher for this work shall have been graduated from a normal school or have had equivalent training and, in addition thereto, have had three years of teaching experience in the public schools. Children to the number of 506 are receiving instruction. The period of time given to each child varies from one to five hours per week.

These children in the majority of cases are making remarkable progress. With but an hour or two a week of instruction, the children are keeping up to grade. Such children apparently look upon this opportunity for instruction as a privilege. As a result they make every effort to take advantage of it. Too often the so-called normal child in school looks upon his educational opportunity as a "right" rather than a privilege. This, perhaps, explains the fact that crippled children, notwithstanding their handicaps, outstrip their more fortunate brothers. Numerous cases have come to the attention of the Department which demonstrate the great happiness which this extension of educational opportunities is bringing into the lives of these shut-in children.

The latter part of the past school year the Department made a survey to discover the general behavior trends of special class pupils, based on a questionnaire answered by the teachers of such pupils. The replies to the eight questions enumerated below indicate that fewer than ten percent of the pupils in these classes which now number over ten thousand have shown indications of moral deficiency. The indications are that they seem no weaker in this respect than a similar group of normal children. The result of this study presents added evidence that character is not measured by intelligence alone.

A summary of the questionnaire is as follows:

		Percent
1. Number of different pupils in your class during the past year	9,885	100.00
2. Number of pupils who have been reported to you, or whose cases have come to your attention, as having violated any law during the year	911	9.2
3. Number who have been arrested or investigated by police	555	5.6
4. Number who have been reported as having set fires	51	0.5
5. Number who have been reported as having run away from home	162	1.6
6. Number who have been reported as cases of sex misconduct	184	1.9
7. Number who have been reported for stealing	530	5.4
8. Number who have been reported as having been out frequently late at night	679	6.9
9. Number who, in your opinion (teacher's) based on out-of-school life, are in danger of falling into habits of vice	1,229	12.4
10. Cases where home environment is poor	2,087	21.1

A FRONTIERSMAN

AT THE

MINNEAPOLIS MEETING

OR

WHEN IS A FRONTIER NOT A FRONTIER?

By MILES GLORIOSUS

Despite the fact that the general convention theme at the Minneapolis meeting of the Department of Superintendence of the National Education Association was "New Frontiers for American Life," some of the more conservative and reactionary elders did not seem to welcome the man who appeared to many to be the outstanding, straight-shooting educational frontiersman there, Dr. Harold Rugg.

I was reminded of a cartoon that I saw some twenty-five years ago, showing a puffy, fussy gentleman in considerable agitation. When his office boy asked what was the matter, the old gentleman exclaimed, "A countryman tried to join the country club today!" The "frontier" at the Minneapolis meeting was pretty well garrisoned by Tories.

I suspect that the conservative objectors were afraid that their teachers could not handle the proposed correlation.

And yet, what Doctor Rugg advocated does not seem to me to be so alarmingly revolutionary after all! Surely there must be an increasing and sustained effort to correlate the subjects that are now taught. All will agree with Doctor Rugg that learning "memoriter" is not the chief end of schooling.

Furthermore, it seems to me that part, at least, of what Doctor Rugg advocated has been successfully worked out and in operation for twenty years notably in Sioux City, Iowa, and in considerable degree for a number of years in other school systems as well.

Let us take the Sioux City work as an example of what is being done in correlating the studies of language, composition, spelling, writing, drawing, oral and silent reading, pub-

(OVER)

lic speaking, and project work, the effort of the pupils being primarily to develop their power to express themselves, using elements from the several "subjects" to develop that power.

Here we find all the best elements of the socialized recitation utilized to work out a series of projects, the projects being the development of language power and not some outside affair. Here we find an example of individual instruction carried as far as can be done without losing control of the class as a whole. Here we find "Interest as Related to Will" exemplified at its best. School executives never cease to wonder at the sustained interest that is displayed throughout the school year by the pupils who are engaged in this work.

Let me repeat that the children carry the work through on their own volition. Any average teacher who has enough self-control to refrain from too much "management" can handle this correlation successfully.

The Sioux City material is published under the title of LANGUAGE IN USE for third, fourth, fifth and sixth grades and ENGLISH IN USE for seventh grade.

You don't need a coonskin cap and a squirrel rifle for this kind of frontier life. All you need is some initial confidence in what has been going on in Sioux City for the past twenty years so that you will be willing to try the material experimentally in one or more of your fourth and fifth grade classes. We shall be glad to quote special prices when the LANGUAGE IN USE material is ordered for experimental use. The more I think of it, the more I feel that LANGUAGE IN USE is a vigorous, healthy, and successful expression of the "frontier" spirit that was sought at Minneapolis.

LANGUAGE IN USE for Fourth, Fifth, and Sixth Grades

and

ENGLISH IN USE for Seventh Grade

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Prepared by the Society's Committee on the Teaching of Geography

Robert M. Brown, Earl E. Lackey, Edith Parker, Douglas Ridgley, DeForest Stull, Zoe Thralls, W. C. Bagley, and A. E. Parkins (Chairman)

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